



US Army Corps
of Engineers
Kansas City District

Rathbun Lake Iowa

DTIC FILE COPY

2

Environment Consultants, Inc.
Dallas, Texas

AD-A203 342

Archaeological Investigations at Rathbun Lake, Iowa

Contract No.: DACW41-80-C-0119



By:

A. Luckenbach
E. Dugan
R. Levy
D. Pollack
C. Niquette



DTIC
ELECTE
DEC 29 1988
S H D

1988



DISTRIBUTION STATEMENT A

Approved for public release;
Distribution Unlimited

88 12 28 081

ARCHAEOLOGICAL INVESTIGATIONS

AT

RATHBUN LAKE, IOWA

By:

**A. Luckenbach
E. Dugan
R. Levy
D. Pollack
C. Niquette**

Prepared for

**U.S. Army Corps of Engineers
Kansas City District
Kansas City, Missouri**

Prepared by:

**Environment Consultants, Inc.
Dallas, Texas**

1988

A203342

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Archaeological Investigations at Rathbun Lake, Iowa		5. TYPE OF REPORT & PERIOD COVERED Final Report 1980-1984
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) A. Luckenbach R. Levy D. Pollack E. Dugan C. Niquette		8. CONTRACT OR GRANT NUMBER(s) DACW41-80-C-0119
9. PERFORMING ORGANIZATION NAME AND ADDRESS Environment Consultants, Inc. Dallas, Texas (Company Defunct)		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Engineering District, Kansas City 700 Federal Building, 601 E. 12th Street Kansas City, Missouri 64106-2896		12. REPORT DATE 1988
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		13. NUMBER OF PAGES 181
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for Public Release, Distribution Unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) archeology predictive model survey Chariton River South-Central Iowa		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Approximately, 7,000 acres of land were surveyed in land designated as a wildlife area. The survey was to investigate the number, character, and potential significance of the resources and to develop a predictive model of areas not surveyed in project lands. Fifty-seven resources were identified. None of the sites contained subsurface deposits or were eligible for the National Register of Historic Places.		

ABSTRACT

This paper presents the results of an archaeological survey of nearly 7,000 acres located in the Rathbun Lake Project Area, south-central Iowa. Fieldwork was conducted in 1980 and 1981 by Environment Consultants, Inc. under contract from the U.S. Army Corps of Engineers. The area surveyed represents a randomly selected portion of the 13,729 acres leased to the Iowa Conservation Commission as a wildlife area.

The purpose of this effort was to investigate the number, character and potential significance of archaeological resources in the area surveyed, and to construct a model capable of assisting resource prediction in the unsurveyed portion.

A total of 57 resources were located in the survey area, which includes 39 newly-discovered sites or isolated artifactual occurrences. All were subjected to surface inspection and data collection. In order to more firmly gauge their informational-potential, 13 sites received additional random shovel testing, 2 were systematically augered, and 6 were tested by more formal excavations. None of these sites, however, proved to possess either sub-surface contexts or data potentials sufficient to warrant their nomination to the National Register of Historic Places.

Although hampered by the general paucity and low informational value of the archaeological resources encountered, computer-assisted statistical analyses were successful in isolating environmental variables significant to resource location. It is argued that, at whatever level of complexity, such a quantitative, predictive model provides the basis for a pragmatic management tool capable of being readily updated and improved by future findings.



Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

ACKNOWLEDGEMENTS

The Rathbun Lake project was directed by Dr. Richard S. Levy, Senior Staff Archaeologist for ECI and Principal Investigator for the project from October 1980 to March 1982. In the fall of 1980, David Pollack served as field supervisor. Crew members were Ellen Dugan and Woody Meiszner. Fieldwork in the spring of 1981 was directed by Dr. Levy and Ms. Dugan.

Analysis and report writing began in the summer of 1981 but was halted until early in 1982 when ECI received notice that FY82 funds were available to cover most of this work. As Dr. Levy was no longer with ECI, Ms. Dugan took responsibility for completion of the report in mid-1982 and essentially wrote a first draft before returning to school in the fall of 1982. Compilation of records, editing, and submission of this draft were handled by Charles Niquette after he completed his responsibilities for the Fort Leonard Wood, Missouri archaeological study. Dr. S. Alan Skinner and Ms. Jeyne Bennett edited the draft and produced it prior to their departure from ECI.

Following an unacceptable review of the first draft in 1983, responsibility for making major revisions in the report fell to Dr. Al Luckenbach of Archaeology Resource Consultants early in 1984. During the spring of 1984 portions of the report were extensively rewritten. Particular emphasis at that time was placed on those sections dealing with the success or failure of the original research design, and on describing the practical results achieved through the use of quantitative predictive modeling of site locations.

Following a review of this second draft in the summer of 1984, a number of changes were incorporated in the final report now presented. The data available for these modifications were limited to those originally provided by ECI.

Artifact analysis for this study was done by David Pollack and Lane Shields of ECI in 1981. The preparation of marked U.S.G.S. maps was done by Lane Shields. Maps were drafted by Margarite Solis-Tucker and artifact illustrations were prepared by Mary Jo Staggs. The manuscript was originally word processed by Allyn Mateu on ECI's Xerox 860 word processing system and subsequently at AMS Secretarial Services of Dallas, Texas.

The contents of this report reflect only the views of the contractor who is solely responsible for the data, analysis, conclusions, and recommendations, and not necessarily those of the Kansas City District, U.S. Army Corps of Engineers.

TABLE OF CONTENTS

	<u>Page</u>
ABSTRACT	ii
ACKNOWLEDGEMENTS	iii
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF PLATES	ix
I. INTRODUCTION	1
II. ENVIRONMENT BACKGROUND	4
GEOGRAPHY	4
GEOLOGY	5
SOILS	6
<u>Project Area Soil Associations</u>	6
Wayne County	7
<u>Seymour-Edina</u>	7
<u>Grunay-Haig</u>	7
<u>Clarinda-Shelby-Adair</u>	7
<u>Gara-Lindley</u>	7
<u>Vesser-Lawson-Nodaway</u>	7
Appanoose County	8
<u>Edina-Seymour-Clarinda</u>	8
<u>Clarinda-Grundy-Haig</u>	8
<u>Gara-Armstrong-Shelby</u>	8
<u>Weller-Keswick</u>	8
<u>Rathbun-Keswick</u>	8
<u>Lindley-Gara</u>	9
<u>Kennebec-Chaquest-Vesser</u>	9
Lucas County	9
<u>Grundy-Haig-Shelby-Adair</u>	9
<u>Shelby-Adair-Grundy</u>	9
<u>Lindley-Weller</u>	9
<u>Nodaway-Wabash</u>	9
<u>Project Area Soil Series</u>	9
Nodaway Series	11
Weller Series	11
Lindley Series	11
Pershing Series	12
Colo Series	12
Gara Series	12
Vesser Series	13
Kniffen Series	13
Beckwith Series	13

TABLE OF CONTENTS (cont.)

	<u>Page</u>
II. ENVIRONMENT BACKGROUND (cont.)	
<u>Project Area Soil Series cont.</u>	
Belinda Series	14
Olmitz Series	14
Mystic Series	14
Rathbun Series	15
CLIMATE	15
FLORA	17
FAUNA	17
III. CULTURE HISTORY	29
PALEO-INDIAN PERIOD (12,000-8000 B.C.)	29
ARCHAIC PERIOD (8500-1000 B.C.)	30
WOODLAND PERIOD (1050 B.C.-A.D. 1000)	32
ONEOTA (A.D.1000-A.D. 1800)	33
HISTORIC-ABORIGINAL	35
HISTORIC PERIOD	35
IV. PREVIOUS RESEARCH	38
V. RESEARCH DESIGN AND METHODOLOGY	42
LITERATURE SEARCH	42
SAMPLE SELECTION	42
FIELD RECONNAISSANCE	44
SITE CODING	47
SITE TESTING	51
LABORATORY METHODS	51
VI. RESULTS OF TESTING	53
13AN18	53
13AN64	61
13AN66	61
13AN67	64
13AN69	66
13WE7	66
13WE8	68
13WE67	71

TABLE OF CONTENTS (cont.)

	<u>Page</u>
VII. MATERIALS RECOVERED	73
PREHISTORIC CHIPPED STONE	73
<u>Cores and Core Fragments</u>	76
<u>Flakes</u>	76
<u>Chunks</u>	78
<u>Marginally Modified Flakes</u>	78
<u>Systematically Modified Flakes</u>	79
<u>Bifaces</u>	79
<u>Projectile Points</u>	82
GROUNDSTONE ARTIFACTS	85
PREHISTORIC CERAMICS	86
DISCUSSION OF CERAMICS	87
HISTORIC MATERIALS	87
<u>Ceramics</u>	88
<u>Stoneware</u>	88
<u>Whiteware</u>	89
<u>Yellowware</u>	90
<u>Porcelain</u>	90
<u>Glass</u>	91
Glass Bottles and Jars	91
Pressed Glass	92
Window/Sheet Glass	95
Milk Glass	95
<u>Metal Artifacts</u>	95
<u>Miscellaneous</u>	95
VIII. RESULTS OF MODELING	97
IX. CONCLUSIONS	103
NUMBER OF RESOURCES	103
NATURE OF RESOURCES	104
NATIONAL REGISTER SIGNIFICANCE	105
SUMMARY INTERPRETATIONS	105
X. BIBLIOGRAPHY	107
APPENDIX I - SITE DESCRIPTIONS	113

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Recorded archaeological sites and associated soils	10
2. Temperature and precipitation of Lucas and Appanoose counties, Iowa	16
3. Flora of the Rathbun Lake project area	18
4. Animal species found in Rathbun Lake project area	20
5. Sample selection location and acreage	45
6. Site Map Numbers	55
7. Summary of sites	56
8. Small recorded findspots	58
9. Lithic artifact frequency, type and raw material classes	75
10. Synopsis of lithic tools recovered	77
11. Metal artifact frequencies and distribution	96
12. Frequency and percentage of sites and environmental points on selected variables	98
13. Significance levels for environmental variables	100

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1. Map of Rathbun Lake Project Areas	2
2. Extent of major archaeological surveys	39
3. Location of odd-numbered sample areas at Rathbun Lake	43
4. Location of archaeological sites recorded at Rathbun Lake, 1980-81	54
5. Plan map of site 13AN18 showing collection grid	60
6. Plan map of site 13AN64 showing collection grid and test pit locations	62
7. General location of site 13AN66	63
8. General location of site 13AN69	67
9. Plan map of site 13WE7 showing auger hole locations and site boundary	69
10. Plan map of site 13WE8 showing auger hole locations	70
11. General location of site 13WE67	72
12. Schematic representation of some relationships among the lithic technological system (Boisvert et al. 1979:30)	74
13. Lithic tools	80
14. Temporally diagnostic artifacts	83
15. Glass artifacts	93
16. Maker's marks	94

LIST OF PLATES

<u>Plate</u>		<u>Page</u>
1.	Wooded survey conditions in sample section RAT 22	46
2.	Field stubble conditions at site 13AN69	46
3.	13AN18/13AN67 - Surface conditions	65
4.	13AN69 - Surface conditions	65

CHAPTER I. INTRODUCTION

Pursuant to Section 2(a) of Executive Order 11593, "Protection and Enhancement of the Cultural Environment," and Section 110 of the National Historic Preservation Act, as amended, the Department of the Army is required to identify, and protect all National Register of Historic Places or eligible cultural and historic properties that are located on lands under the Army's control or jurisdiction. The Department of the Army is further required, under Section 2(b) of Executive Order 11593 and Section 106 of the National Historic Preservation Act (16 U.S.C. Section 470f, as amended, 90 Stat. 1320) to provide adequate planning to ensure that all cultural and historic properties included in or eligible for inclusion in the National Register of Historic Places are properly managed. These properties must also be afforded an appropriate level of consideration in advance of undertakings which may affect them.

Consistent with these responsibilities, the U.S. Army Corps of Engineers (C.O.E.) contracted in 1980 with Environment Consultants, Inc. (E.C.I.) to conduct an archaeological survey of a portion of the government-owned land at Rathbun Lake, on the Chariton River, in Iowa. Rathbun Lake is a multipurpose water resources development project in the south-central portion of the state. The project consists of 33,908 acres of government-owned land, of which approximately 11,000 acres have been inundated by the lake (Figure 1).

The work conducted under the present contract consisted of surveying and evaluating sites located in a portion of project land leased to the Iowa Conservation Commission (I.C.C.). This Wildlife Area is situated in the upper lake area and includes the Chariton River and South Chariton River floodplains. The Wildlife Area includes approximately 13,729 acres located in portions of Appanoose, Wayne, Lucas and Monroe counties, Iowa.

The contract specifically required a random sample survey of at least 6,450 acres of the land leased to the I.C.C. All archaeological resources were to be located, and evaluated in terms of their ability to meet the criteria for inclusion in the National Register of Historic Places. In addition, predictive models governing the number and location of cultural properties in the unsurveyed portion were to be constructed.

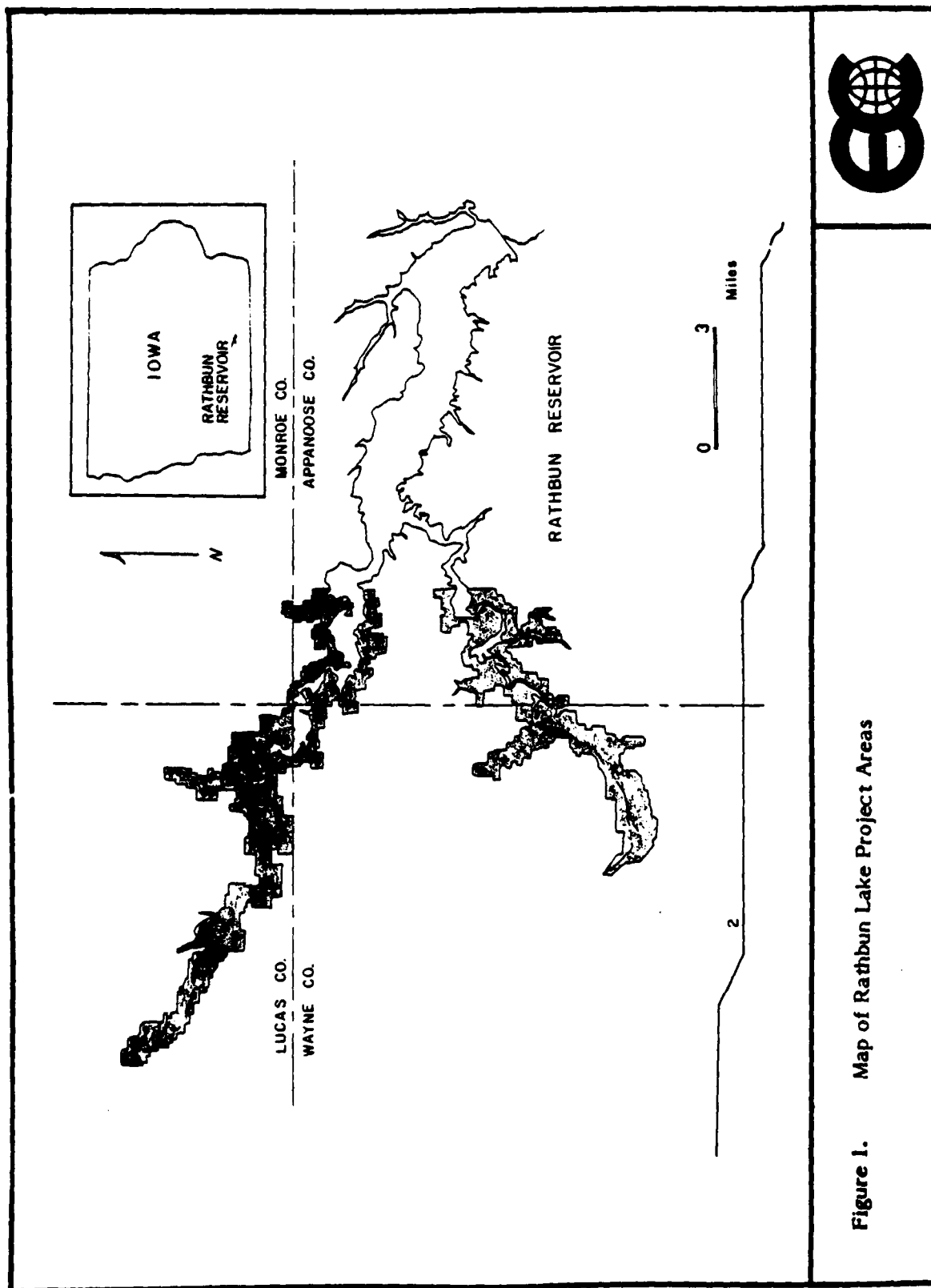


Figure 1. Map of Rathbun Lake Project Areas

Between March and May 1981, therefore, E.C.I. conducted an intensive archaeological survey of 6,503.8 acres. This acreage represents approximately a 50% sample of the total 13,729 acres of Wildlife Area on the reservoir lands. The sample consisted of 27 numbered sections randomly located within the project boundaries (see Chapter V). In addition, E.C.I. had previously conducted a survey of six adjacent proposed wetland development areas totalling 387.6 acres (Pollack et al 1980), the results of which have also been incorporated in this study.

A total of 57 archaeological resources were located and inspected within the study area. Thirty one of these sites consist of small, low density sites or isolated finds. Although such remains have sometimes been labeled "non-sites," Thomas (1975), Wait (1976), and others have demonstrated that isolated artifacts and diffuse lithic scatters can lend important data to site and behavioral patterning. We have therefore, considered any "locus of cultural materials" a site (Schiffer and Gumerman 1977:183).

A variety of investigative techniques were employed to evaluate the significance of the resources located. These included random and controlled surface collections as well as the frequent use of shovel-test pits for subsurface inspections.

Eight sites were deemed sufficiently promising (including two initially-evaluated in 1980) to warrant more intensive significance evaluations. This was achieved through a combination of systematic augering or more formal test excavation. Unfortunately all of the sites so-tested proved to lack either sufficient sub-plow-zone context or informational potential to meet the criteria of the National Register of Historic Places.

Despite the relatively small amount of cultural data which was actually recovered in this survey, concrete results were still achieved with regards to the construction of a predictive model. Though based on a small sample, computer assisted analyses still demonstrated the presence of statistically significant environmental variables governing site location.

This report documents these results, as well as the field, laboratory, survey, and analytical methods used to obtain them. It is argued that even simple quantitative models such as that presented here provide much more useful tools for planning and resource management than do the qualitative models commonly produced by archaeologists.

CHAPTER II. ENVIRONMENTAL SETTING

This chapter, like the two which follow it, is meant to provide a brief summation of background information derived from other sources. Each is intended to provide a context in which the results of the survey and testing activities can be gauged. Naturally, the significance of any given section is wholly dependent on its later relevance to actual findings in the field. As a consequence, the detail provided in each varies as well.

At this point a variety of information on the environmental setting of the project area is provided. This includes sub-sections on geography, geology, soils, climate, flora, and fauna. The first three on this list are particularly important given their later utilization in predictive modeling.

GEOGRAPHY

The Rathbun Lake project area is part of the physiographic province known as the Central Lowlands (Fenneman 1928). It is located on the Chariton River in south-central Iowa, about 20 miles north of the Iowa-Missouri state line. Nearby towns include Chariton (12 miles northwest), Centerville (5 miles south), and Rathbun (2 miles south of the dam).

The Chariton River originates in Clark County, Iowa, and flows south easterly to the Missouri state line. It then flows in a southerly direction through Missouri to the town of Glasgow where it empties into the Missouri River. The Chariton River valley is deeply incised with relatively broad floodplains.

The primary purposes of Rathbun Lake are flood control and water conservation. The pool of the lake stands at 904 feet above mean sea level and covers approximately 11,000 acres. At full flood control pool it would be at 926 feet above mean sea level and cover about 21,000 acres. Rathbun Lake is located mainly in Appanoose County, with arms reaching into parts of Wayne, Lucas, and Monroe counties.

The project area is confined to the upper end of the Chariton River drainage which includes the North and South Forks of the Chariton River. The area generally consists of broad valleys and small tributaries of the Chariton River. Ridge fingers are located throughout the upper Chariton, most often extending in a north-south direction. The North and South Forks of the Chariton have tended to meander throughout the floodplain. Numerous old channels and oxbow

lakes are found in the floodplain. In the 1940s many sections of the North and South Forks were channelized in order to straighten the river. The river bottoms are fairly level and frequently flood, but small knolls and ridges are present in some areas.

GEOLOGY

The Rathbun Lake project area geology generally consists of a series of thick shales alternated with thin layers of clay, coal, limestone and sandstone. These bedrock layers are all of Pennsylvanian age and are deeply buried by glacial drift and loess deposits. The loess deposits are Wisconsin age and are on a Yarmouth-Sangamon paleosol, formed in Kansas till. The base of the loess is 16,500 to 24,000 years old; loess summits are 14,000 years old, and hill slopes are younger. Stepped topographic levels between divides and drainages may have Wisconsin loess on a Wisconsin erosion surface or Late Sangamon paleosol on Kansan drift. The glacial deposits generally extend to a depth of 125 feet. The loess layer above these deposits ranges from 1 to 18 feet deep (Ruhe 1969; U.S. Army Engineer District, Kansas City 1975). The extensive erosion that occurs in the project area has washed away much of the original loess cover.

The state of Iowa was glaciated four times. The four glacials and interglacials, from oldest to youngest, are as follows:

Nebraskan Glaciation

Aftonian Interglacial

Kansan Glaciation

Yarmouth Interglacial

Illinoian Glaciation

Sangamon Interglacial

Wisconsin Glaciation

Recent Interglacial

The Yarmouth Sangamon Paleosol, formed in Kansas till and in locally transported sediment, is the oldest paleogeomorphic surface of major extent in Iowa. The maximum age of this paleosol dates to the beginning of the Yarmouth interglacial. The minimum age of this surface ranges between 16,500-29,000 years ago. The Yarmouth Sangamon was

exposed on the tabular divides and subjected to weathering well into the Wisconsin glaciation. The Yarmouth Sangamon paleosol can be found on the leveled edges of hill slopes in the tabular divides of southern Iowa (Ruhe 1969).

There are two major Wisconsin age deposits which cover the state of Iowa. Wisconsin loess (unstratified and unconsolidated, wind-deposited sediment) covers about 66% of the state, and Wisconsin drift of Cary age covers about 22% of the state (Ruhe 1969:28). The base of the Wisconsin loess has been dated to between 16,500-29,000 B.P. although the mean age for the base in south-central Iowa is 18,000 B.P. (Ruhe 1969). Throughout southern Iowa, Wisconsin loess had buried the prior land surfaces formed in the Kansan drift. Southern Iowa has been informally known as the Kansan drift region.

The topography of south-central Iowa is varied. The inter-riverine uplands are broad and extensive and have been named flat tabular divides. A buried Yarmouth-Sangamon surface and its paleosols ("Kansas gumbotil") are typical in this area. Other former land surfaces in this part of the state include the Late Sangamon surface and others of Wisconsin age. Directly under the Wisconsin loess is the Late Sangamon surface, with stone line and reddish paleosols beneath. This Late Sangamon surface is an erosional surface cut into the Kansas till and below the Yarmouth-Sangamon surface. This cutting process removed the Yarmouth Sangamon paleosol and parts of the Kansas till.

The lowest surface was eroded during the Wisconsin glaciation and during deposition of the loess. This surface is of Wisconsin age and was formed sometime between 14,000 and 18,700 years ago (Ruhe 1969).

SOILS

The soils in Appanoose, Wayne, and Lucas counties developed from glacial till (ice-laid material), loess (wind blown material), or alluvium (water-laid material). Eolian sands are found in some small areas along the Chariton River. Limestone and shale parent material may also be observed in a few places. The soils in the project area formed under prairie, forest, and grass, and forest vegetation (Lockridge 1971, 1977; Ruhe 1969).

Project Area Soil Associations

Sixteen soil associations occur within the three county area. These are briefly described below.

Wayne County

Seymour-Edina

Soils in this association are dark to moderately dark colored and poorly drained. The soils are developed from loess and are found on nearly level upland flats, and on gently sloping and moderately sloping ridge top and sides of ridges. The association covers about 26% of Wayne County and is the most extensive loessal area.

Grunay-Haig

This association consists of dark-colored, poorly drained to moderately well drained soils. These soils occur on nearly level flats, and gently sloping to moderately sloping ridge tops and side slopes. Soils of this association developed from loess and occur mostly in the west half of the county, especially on the northern edge. This association occupies about 4.5% of the county.

Clarinda-Shelby-Adair

Soils are dark or moderately dark colored and poorly drained to somewhat poorly drained. This association is derived from glacial till. They consist of sloping soils on narrow ridge tops and moderately to strongly sloping soils on dissected side slopes. Main branches of the upland drainageways originate in soils of this association. The association occurs throughout the county and covers about 53% of the area.

Gara-Lindley

Soils in this association are derived from glacial till and range from moderately dark colored to light colored. Soils are moderately well drained and occur on steep valley sides dissected by V-shaped waterways and on the borders of major stream valleys. The soils of this association occupy about 8.5% of the county.

Vesser-Lawson-Nodaway

This association consists of poorly to moderately well drained soils derived from alluvium. The soils occur on floodplains which exhibit abandoned stream channels. The soils in this association are occasionally flooded and occupy about 8% of the county.

Appanoose County

Edina-Seymour-Clarinda

Soils of this association are dark to moderately dark colored and range from poorly drained to somewhat poorly drained. The soils occur on nearly level upland divides and on gently to moderately sloping ridge tops and side slopes. Soils were formed in loess and glacial till in uplands and make up about 30% of the county.

Clarinda-Grundy-Haig

This association consists of poorly drained to somewhat poorly drained, dark-colored soils. The soils formed in glacial till and in loess on the uplands. The soils in this association occur on nearly level, but wide upland divides, and on gently to moderately sloping ridge tops and slopes. This association covers approximately 5% of the county.

Gara-Armstrong-Shelby

The soils of this association are dark to moderately dark colored and range from poorly to moderately drained. The association consists of moderately sloping soils on narrow rounded ridge tops and moderately steep to steep soils on slopes dissected by waterways. These soils formed in glacial till and have loamy and clayey subsoils. This association covers about 36% of the county.

Weller-Keswick

This association consists of light colored, moderately well to poorly drained soils formed in loess and glacial till. The soils occur on narrow, moderately sloping ridge tops and moderately to strongly sloping sides of ridges dissected with waterways. The soils have a loamy and clayey subsoil and cover about 3% of the county.

Rathbun-Keswick

Soils in this association are light colored, poorly to moderately drained, and have a dominantly clayey subsoil. Soils were formed in loess and glacial till and occur on narrow, sloping ridge tops and on moderately to strongly sloping ridge sides that are dissected by waterways. The association covers about 4% of the county.

Lindley-Gara

Soils of this association are moderately dark colored and light colored and moderately well drained. Soils are formed in glacial till and are found on strongly sloping and steep valley sides dissected by waterways, and on the borders of major stream valleys. Fourteen percent of the county consists of soils from this association.

Kennebec-Chaquest-Vesser

Dark colored to moderately dark colored soils that are moderately to poorly drained make up this association. Soils were formed in bottomland alluvium and are found on floodplains dissected by abandoned stream channels. The soils have a loamy subsoil. This association covers about 8% of the county.

Lucas County

Grundy-Haig-Shelby-Adair

This association consists of dark-colored soils on nearly level divides and on the adjacent moderately sloping slopes. It occurs throughout the county.

Shelby-Adair-Grundy

Soils of this association are dark colored and occur on steep to gently sloping areas throughout the county.

Lindley-Weller

This association consists of light-colored soils developed from firm clay loam. The soils occur on the steep to gently sloping areas in the northern part of the county.

Nodaway-Wabash

Soils of this association are dark to moderately dark colored. They are found in narrow strips along stream floodplains. These bottomlands are sometimes flooded.

Project Area Soil Series

Thirteen soil series are described below. The twenty-six sites (not including the thirty-one isolated finds and light surface scatters) found or relocated during the present investigations occur on these thirteen soils. Table 1 lists the sites and their associated soils.

Table 1.
Recorded archaeological sites and associated soils

Site Number	Soil Series
13AN18	Weller
13AN21	Belinda
13AN36	Rathbun
13AN64	Pershing
13AN66	Belinda
13AN67	Mystic
13AN69	Olmitz
13LC4	Beckwith
13LC11	Weller
13LC12	Lindley
13LC13	Nodaway
13WE7	Pershing
13WE8	Vesser
13WE10	Pershing
13WE13	Pershing
13WE14	Pershing
13WE15	Pershing
13WE17	Kuiffen
13WE35	Pershing
13WE51	Pershing
13WE52	Pershing
13WE63	Gara
13WE64	Colo
13WE65	Lindley
13WE66	Colo
13WE67	Pershing

Nodaway Series

The Nodaway series consists of moderately well drained soils that are found on both narrow and wide first bottoms near the main channels of streams. These soils formed in stratified silty alluvium. Floods deposit fresh sediments on the surface. Some areas are dissected by meandering old stream channels.

In a representative profile, the surface layer is dark grayish-brown silt loam 13 inches thick. The sub-stratum, to a depth of 60 inches or more, is variable thin strata of very dark gray, grayish-brown, and brown, friable light silty clay loam or silt loam. There are strata of fine sand in places (Lockridge 1977:49).

Weller Series

The Weller series consists of moderately well drained to somewhat poorly drained soils on uplands. These soils are in the north-central and northeastern parts of the county and on benches along most of the major streams. They formed in leached loess 48 to 96 inches thick over a buried, reddish, clayey soil. These buried materials are similar to Keswick soils that formed in Kansan till. The soils on benches are underlain by stratified alluvium. The native vegetation was, forest. Slopes range from 2 to 4 percent and are generally short and convex. These soils are frequently situated upslope from Keswick and Lindley soils and on landscape positions similar to those of Pershing, Grundy, and Lineville soils. Individual areas range from 5 to 30 acres in size.

In a representative profile, the surface layer is very dark grayish-brown silt loam about 11 inches thick. The sub-surface layer is grayish-brown, friable silt loam about 11 inches thick. The subsoil, about 24 inches thick, is mottled grayish-brown to brown, firm silty clay that grades to silty clay loam with increasing depth. The underlying material is mottled grayish-brown silty clay loam (Lockridge 1977:62).

Lindley Series

The parent material of Lindley soils have developed under forest. Their parent material was glacial till. The soils are rolling to steep and are subject to erosion. They occupy about 17.2 percent of Lucas county and occur chiefly in association with Weller soil.

The color and texture of the lower layers of these soils vary. In some areas the subsoil is yellowish-brown and has

a medium texture. In others it is reddish-brown and has a fine texture. These differences were brought about as a result of the complex geological history of these soils (Prill 1960:16).

Pershing Series

The Pershing series consists of somewhat poorly drained to moderately well drained soils on uplands in the north-central parts of Appanoose county. These soils formed in leached loess 48 to 96 inches thick over a buried, slowly permeable, gray clayey soil. In some places these soils are located on benches along major streams and are underlain by stratified alluvium. The native vegetation was a mixture of grass and trees. Slopes range from 2 to 9 percent and are mostly short and convex. These soils are frequently found upslope from Armstrong, Clarinda, and Gara soils. The landscape of the Pershing soils is similar to that of Grundy and Weller soils. Individual areas range from 3 to 25 acres in size.

In a representative profile, the surface layer is very dark gray silt loam about seven inches thick. The sub-surface layer is dark grayish-brown, friable silty clay loam about seven inches thick. The sub-soil, about 46 inches thick, is mottled grayish-brown, firm silty clay that grades to silty clay loam with increasing depth (Lockridge 1977:52).

Colo Series

The Colo series consists of poorly drained soils on bottomlands and foot slopes. These soils were formed in moderately fine, textured, silty alluvium under wetland grass vegetation. They are found on the larger floodplains and in gently sloping areas near drainage ways and large streams. Colo soils are not extensive, but individual areas are as large as 80 acres.

In a representative profile, the surface layer is black silty clay loam, about 30 inches thick. The sub-soil (to a depth of 69 inches) is black to grayish-brown, firm silty clay loam that commonly has a few mottles in the lower part (Lockridge 1977:27).

Gara Series

The Gara series consists of moderately well drained soils that formed in slightly weathered glacial till on uplands under mixed forest and prairie grass vegetation. These soils are on rounded ends of narrow ridge tops and irregular, complex side slopes along all large streams and rivers in Appanoose county. Slopes range from 9 to 24 percent.

In a representative profile, the surface layer is very dark gray loam about 8 inches thick. The subsurface layer, about 6 inches thick, is dark grayish brown, friable loam. The subsoil, about 28 inches thick, is brown to dark yellowish-brown, firm clay loam. The substratum is mottled yellowish-brown, firm clay loam (Lockridge 1977:30).

Vesser Series

The Vesser series consists of somewhat poorly drained to poorly drained soils on bottomlands and foot slopes. These soils formed in alluvium under a native vegetation of prairie grasses.

In a representative profile, the surface layer is very dark gray silt loam about 12 inches thick. The subsurface layer is 20 inches thick. It is gray to dark-gray, friable silt loam in the upper part and gray, slightly firm, silty clay loam in the lower part. The subsoil, to a depth of 60 inches or more, is dark-gray, firm silty clay loam (Lockridge 1977:61).

Kniffin Series

The Kniffin series consists of somewhat poorly drained soils on uplands. These soils formed in leached loess about 48 to 80 inches thick over a buried, very slowly permeable, clayey soil. The native vegetation was a mixture of grass and trees. Slopes range from 2 to 9 percent and are mostly short and convex. Kniffin soils are located on narrow ridge tops upslope from Armstrong, Clarida, Lamoni, and Gara soils. They are found in most parts of Appanoose county except the north-central parts. Individual areas range from 5 to 30 acres in size.

In a representative profile, the surface layer is very dark gray silt loam about 6 inches thick. The subsurface layer is dark grayish-brown and grayish-brown, friable silt loam and silty clay loam about 7 inches thick. The subsoil, to a depth of 60 inches or more, is mottled dark grayish brown, firm and very firm silty clay that grades to silty clay loam in the lower part.

Beckwith Series

The Beckwith series consists of poorly drained soils on the narrow, flat ridge tops near the major streams in the northern parts of Appanoose county. These soils formed in leached loess under a vegetation of trees. The loess, 6 to 8 feet thick, is underlain by a very slowly permeable, gray clayey soil. Slopes range from 0 to 2 percent.

In a representative profile, the surface layer is dark grayish-brown silt loam about 6 inches thick. The sub-surface layer is light brownish-gray, friable silt loam about 9 inches thick. The subsoil, to a depth of 60 inches, is dark grayish-brown, firm silty clay that grades to grayish-brown, firm silty clay loam in the lower part (Lockridge 1977:19).

Belinda Series

The soils of the Belinda series are moderately dark colored and are poorly drained. They have a claypan in the lower part of the profile. The soils occur on nearly level uplands and on loess-covered terraces. Their parent material was loess.

Originally, these soils were covered by prairie grasses, but trees invaded the areas. As a result, the characteristics of the Belinda soils are about halfway between those of the Haig soils, which have developed under prairie, and the Beckwith, which have developed under forest (Prill 1960:12).

Olmitz Series

The Olmitz series consists of dark-colored, moderately well drained loamy soils on foot slopes. These soils were formed from loamy materials that washed from adjoining slopes. The native vegetation was of the prairie type.

These soils occupy many slightly concave foot slopes of 2 to 5 percent that are located between the soils on bottomlands and steeper soils that were derived from till on hillsides. Olmitz soils also occur closely intermingled with Vesser and Colo series soils on alluvial fans. These soils are found in all parts of Wayne county, and individual areas range from 3 to 20 acres in size. They are good agricultural soils (Lockridge 1971:35).

Mystic Series

The Mystic series consists of somewhat poorly drained soils that formed in water-sorted glacial sediments under grass and forest vegetation. These moderately fine to fine textured sediments were deposited as alluvium during an earlier geologic period. The soils may have been partly buried by loess at one time, but were later exposed by erosion. They generally do not have a stone line in the solum. They are situated in major stream valleys throughout the county. Slopes range from 5 to 18 percent.

In a representative profile the surface layer is dark grayish-brown, friable silt loam about 4 inches thick. The

subsoil, about 35 inches thick, is dark grayish brown and dark brown to strong-brown and reddish-brown, friable or firm, silty clay loam, clay, and clay loam that in most places is mottled with shades of brown. The substratum is brown and light brownish-gray clay loam (Lockridge 1977:47).

Rathbun Series

The Rathbun series consists of somewhat poorly drained soils on uplands. These soils formed in leached loess 48 to 80 inches thick over a buried reddish clayey soil. The buried materials are similar to the Keswick soils. These soils are upslope from Keswick, Gara, and Lindley soils. They are found in most parts of Appanoose county except the north-eastern and north-central parts. Slopes range from 2 to 9 percent and are generally short and convex. Individual areas range from 5 to 35 acres in size. The native vegetation was forest.

In a representative profile, the surface layer is very dark gray silt loam about 4 inches thick. The subsurface layer is yellowish-brown, friable silt loam 9 inches thick. The subsoil is about 43 inches thick and is mottled, grayish-brown to brown, very firm silty clay that grades to silty clay loam with increasing depth. The substratum is mottled light brownish-gray silty clay loam (Lockridge 1977:54).

CLIMATE

The climate of present-day Iowa is characteristic of the mid-continent region. Winters are cold and dry, and summers relatively long and wet. Temperatures range from -25 degrees F in the winter to 100 degrees F in the summer. The average winter temperature is 21.6 degrees F (U.S. Department of Agriculture 1941). The average annual snowfall in the project area is 25.2 inches and occurs between the months of November and March (U.S. Army Engineer District, Kansas City 1975:2-1). Approximately 71% of the annual rainfall occurs during the 180 day growing season, from April through September. Annual precipitation varies from 32-38 inches in the Chariton River Basin, but the mean recorded at Centerville is 33.5 inches (U.S. Army Engineer District, Kansas City 1975:2-1). In the winter months, winds are predominantly from the northwest. During April to October southerly winds prevail (U.S. Department of Agriculture 1941: 872). Table 2 gives average temperature precipitation for Lucas and Appanoose counties.

Naturally, during man's lengthy tenure in Iowa, the climate has undergone several significant changes. Existing data indicate that over the last 14,500 years Iowa's climate has

Table 2.
Temperature and precipitation of Lucas and
Appanoose counties, Iowa*

	Average Temperature F	Average Precipitation Inches	Average Temperature F	Average Precipitation Inches
	<u>Chariton, Lucas County</u>		<u>Centerville, Appanoose County</u>	
January	27.9	1.05	24.0	1.4
February	25.6	1.04	29.0	1.1
March	37.9	1.68	38.0	2.4
April	50.0	2.74	51.5	3.3
May	60.8	3.75	62.5	3.8
June	69.8	4.66	72.0	5.3
July	75.4	3.61	77.0	3.2
August	73.5	3.72	75.0	4.2
September	65.7	4.21	67.0	3.4
October	54.4	2.45	56.0	2.4
November	40.0	1.73	40.5	1.7
December	27.0	1.07	30.0	1.3

*compiled from Lockridge 1977 and Prill 1960.

gone from cold and moist conditions in late-glacial and early post-glacial times, through a warm and moist period, before reaching the present warm and dry conditions (Brush 1967:111). Evidence for these changes is largely derived from the study of pollen sequences preserved in ancient bogs, and thus is intimately related to our knowledge of changing floral patterns.

FLORA

The pollen studies just mentioned indicate that Iowa underwent a sequence of floral (and climatic) changes generally characteristic of the mid-continental region. As glacial conditions abated and man first enters Iowa, the area is apparently covered with a fir-spruce forest indicative of the cold, moist climate (Brush 1967:99). By about 8,000 years ago, warm conditions have altered this taiga environment to a mixed coniferous-deciduous forest which predominates until around 6,500 B.P. (Ruhe 1969; Lockridge 1971). After that, a general decrease in precipitation rates led to a "succession of chenopods and oak-grasslands" (Brush 1967:99), culminating in the present natural environment. It is noteworthy that virtually all of the cultural remains so far recovered from the Rathbun Lake project area are datable to this last climatic period.

By the time the first, European settlers entered the area prairie grasses covered much of the land surface. Trees grew on the bottomlands in narrow strips and along streams in the uplands (Lockridge 1971, 1977). Much of the forest was cut by the early settlers to clear land for crops. Grazing and poor logging practices in the project area have also prevented and hindered forest restocking efforts. In many places faster growing conifers are being planted in place of the native hardwoods (Lockridge 1971). The native plant communities have been significantly altered by agricultural practices. Grain crops and pasture land now cover most of the project area but small forested areas are still found along streams and in bottomlands (U.S. Army Engineer District, Kansas City 1975). Table 3 lists some of the flora common to the project area at the present time.

FAUNA

The Rathbun Lake project area supports a wide variety of wildlife. Wildlife population estimates by the Iowa State Conservation Commission showed that cottontail rabbit, quail, whitetailed deer, fox, squirrel, raccoon, opossum, striped skunk, and badger occur in high density in the project area. Waterfowl are also abundant because of the area's location along their migratory route. The area also supports a diverse non-game bird population.

Table 3.
Flora of the Rathbun Lake project area

Common Name	Scientific Name
<u>Trees:</u>	
American Elm	<u>Ulmus americana</u>
Basswood	<u>Tilia americana</u>
Bitternut Hickory	<u>Carya coridformis</u>
Black Cherry	<u>Prunus seotina</u>
Black Oak	<u>Quercus velutina</u>
Black Walnut	<u>Juglans nigra</u>
Bur Oak	<u>Quercus macrocarpa</u>
Chinquapin Oak	<u>Quercus muhlenbergii</u>
Eastern Cottonwood	<u>Populus deltoides</u>
Green Ash	<u>Fraxinus pennsylvanica</u>
	<u>subintegerrima</u>
Pignut Hickory	<u>Carya glabra</u>
Pin Oak	<u>Quercus palustris</u>
Red Oak	<u>Quercus rubra</u>
Silver Maple	<u>Acer saccharinum</u>
Shagbark Hickory	<u>Carya ovata</u>
Sycamore	<u>Platanus occidentalis</u>
White Oak	<u>Quercus alba</u>
Willow	<u>Salix L.</u>
<u>Grasses:</u>	
Big Bluestem	<u>Andropogon gerardi</u>
Indian Grass	<u>Sorghastrum nutans</u>
Little Bluestem	<u>Andropogon scoparius</u>
Sideouts Gramma	<u>Bouteloua centipendula</u>
Switchgrass	<u>Panicum virgatum</u>

When the area was first settled, deer, antelope, elk, turkey, prairie chicken, bobcat, and wolves were reported to be abundant in the area (Ashton et al. 1893). Naturally, during the early post-glacial period faunal differences were even greater. These would have included a number of large herd animals such as elephant, bison and other forms now extinct. Although man was assumedly present at this time, as stated, there is no direct evidence of this in the Rathbun area. Table 4 is a list of the animal species found in the Rathbun Lake project area.

Table 4.
Animal species found in Rathbun Lake project area*

Species	Habitat
<u>Mammals:</u>	
Badger <u>Taxidea taxus</u>	Permanent resident of open fields
Beaver <u>Castor canadensis</u>	Permanent resident of streams and lakes
Big Brown bat <u>Eptesicus fuscus</u>	Cosmopolitan
Cottontail rabbit <u>Sylvilagus floridanus</u>	Woodland edge, permanent resident
Coyote <u>Canis latrans</u>	Permanent resident, nearly cosmopolitan
Deer mouse <u>Peromyscus maniculatus</u>	Woods, prairies, farmlands
Eastern mole <u>Scalopus aquaticus</u>	Well drained soil in open areas, parks
Fox squirrel <u>Sciurus niger</u>	Woodlands with mast producing tree species
Hoary bat <u>Lasirirus cinereus</u>	Forested areas
House mouse <u>Mus musculus</u>	Near man's developments
Least shrew <u>Cryptotis parva</u>	Brushy and grassy damp areas
Little brown bat <u>Myotis lucifugus</u>	Edges of forests, water areas
Meadow jumping mouse <u>Zapus hudsonius</u>	Swamps, bogs, woodland habitats
Meadow vole <u>Microtus pennsylvanicus</u>	Meadows, woodland and swamp edge

Species	Habitat
Muskrat <u>Ondatra zibethicus</u>	Marshes, lakes
Norway rat <u>Rattus norvegicus</u>	Unwanted constant companion of men
Opposum <u>Didelphis marsupialis</u>	Woodlands adjacent to farm land
Plains pocket gopher <u>Geomys bursarius</u>	Deep soil in fields and pastures
Prairie vole <u>Microtus ochrogaster</u>	Prairies, fence rows, fields
Raccoon <u>Procyon lotor</u>	Permanent resident, woodland, stream edge dweller
Short-tailed Shrew <u>Blarina brevicauda</u>	Cosmopolitan
Striped skunk <u>Mephitis mephitis</u>	Permanent cosmopolitan resident
Thirteen lined ground squirrel <u>Citellus tridecemlineatus</u>	Brushy wood areas, golf courses, parks
White-footed mouse <u>Peromyscus leucopus</u>	Woods, thickets, stream sides
White-tailed deer <u>Odocoileus virginianus</u>	Permanent resident, woodland edge
Woodchuck <u>Marmota monax</u>	Dry woods and adjacent areas
<u>Birds:</u>	
American coot <u>Fulica americana</u>	Marshes, rivers, lakes, summer resident
Blue jay <u>Cyanocitta cristata</u>	Permanent woodland resident

Species	Habitat
Belted kingfisher <u>Megaceryle alcyon</u>	Near ponds, lakes, streams shore- line
Black-capped chickadee <u>Anas discors</u>	Cosmopolitan, permanent resident
Bobwhite quail <u>Colinus virginianus</u>	Brush and field border habitats
Brown creeper <u>Certhia familiaris</u>	Woodlands and swamps
Brown thrasher <u>Torostoma rufum</u>	Woodlands and brushy areas
Canada goose <u>Branta canadensis</u>	Ponds, rivers, lakes, fields, permanent resident
Canvasback <u>Aythya valisneria</u>	Ponds, lakes, rivers, migrant
Cardinal <u>Richmondia cardinalis</u>	Woodlands, winter resident
Chipping sparrow <u>Spizella passerina</u>	Grassland edge
Common crow <u>Corvus brachyrhynchos</u>	Fields, parks, permanent resident
Common grackle <u>Quiscalus quiscula</u>	Lawns, parks, permanent resident
Common night hawk <u>Chordeiles minor</u>	Varied habitats, woodlands to city rooftops
Downy woodpecker <u>Dendrocopus rubescens</u>	Open woodland, field edges
Eastern goldfinch <u>Spinus tristis</u>	Open country, field edges
Eastern kingbird <u>Tyrannus tyrannus</u>	Farmlands and woodlands

Species	Habitat
Eastern meadowlark <u>Stunella magna</u>	Prairies and upland fields
Eastern screech owl <u>Ottus asio</u>	Orchards, woodlands, small towns, permanent resident
English sparrow <u>Paser domesticus</u>	Cosmopolitan, near man's dwellings
Great blue heron <u>Ardea herodias</u>	Shallow water areas, summer resident
Great horned owl <u>Bubo virginianus</u>	Permanent resident of woodlands
Green heron <u>Butorides virescens</u>	Shallow water areas, summer resident
Hairy woodpecker <u>Dendrocopus villosus</u>	Woodlands, permanent resident
Herringg gull <u>Larus argentatus</u>	Shorelines, permanent resident
Horned lark <u>Eremophilia alpestris</u>	Farmlands, shorelines
Killdeer <u>Charadrius vociferus</u>	Fields and pastures
Lesser scaup <u>Aythya affinis</u>	Fresh water areas, migrant
Long-eared owl <u>Asio ottus</u>	Mixed woodlands
Mallard <u>Anas platyrhynchos</u>	Any water habitat, permanent resident
Marsh hawk <u>Circus cyaneus</u>	Marshes, fields, permanent resident
Mourning dove <u>Zenaidura macroura</u>	Farmlands, suburbs

Species	Habitat
Pintail <u>Anas acuta</u>	Ponds, lakes, marshes, migrant
Red-billed woodpecker <u>Centurus carolinus</u>	Woods and field edges, permanent resident
Red-eye vireo <u>Vireo olivaceus</u>	Deciduous woodlands
Redhead <u>Aythya americana</u>	Fresh water areas migrant
Red-headed woodpecker <u>Melanerpes erythrocephalus</u>	Open woods, field edges, permanent resident
Red-tailed hawk <u>Buteo jamaicensis</u>	Wooded areas or marshes, permanent resident
Red-winged blackbird <u>Agelaius phoeniceus</u>	Parklands and marshes
Ringbilled gull <u>Larus deawarensis</u>	Shorelines, permanent resident
Ringnecked pheasant <u>Phasianus colchicus</u>	Permanent resident of brushy areas and field edges
Robin <u>Turdus migratorius</u>	Open woodlands and towns
Short-eared owl <u>Asio flammeus</u>	Open country, marshes, meadows, permanent resident
Snow goose <u>Chen hyperborea</u>	Ponds, lakes, rivers, migrant
Sparrow hawk <u>Flaco sparverius</u>	Open country, roadsides, permanent resident
Spotted sandpiper <u>Actitis macularia</u>	Along freshwater shorelines
Starling <u>Sturnus vulgaris</u>	Cosmopolitan, permanent resident

Species	Habitat
Tufted titmouse <u>Parus bicolor</u>	Deciduous woodlands, swamps
Turkey <u>Meleagris gallopavo</u>	Open Woodland
Turkey vulture <u>Cathartes aura</u>	The open sky near woodlands, summer resident
Western meadowlark <u>Sturnella neglecta</u>	Prairies and upland fields
White-breasted nuthatch <u>Sitta carolinensis</u>	Woodlands, permanent resident
Wood duck <u>Aix sponsa</u>	Fresh-water marshes, rivers, summer resident
Yellow-shafted flicker <u>Colaptes auratus</u>	Open country near large trees
<u>Fish:</u>	
Bigmouth buffalo <u>Ictiobus cyprinellus</u>	Large rivers, turbid lakes
Bluegill <u>Lepomis macrochirus</u>	Weedy areas of pounds and lakes
Bluntnosed minnow <u>Pimephales notatus</u>	Streams and lakes with much plankton
Bullhead <u>Ictalurus melas</u>	Mud-bottomed lakes, ponds
Carp <u>Cyprinus carpio</u>	Cosmopolitan
Channel catfish <u>Ictalurus punctatus</u>	Rivers and lakes
Drum <u>Aplodinotus grunniens</u>	Lake shallows, large rivers

Species	Habitat
Fathead minnow <u>Pimephales promelas</u>	Muddy streams, creeks, and lakes
Gizzard shad <u>Dorosoma cepedianum</u>	Mud-bottomed, shallow water
Largemouth bass <u>Micropterus salmoides</u>	Ponds, lakes, with vegetation
Muskellunge <u>Esox masquinongy</u>	Large lakes, fresh water
Northern creek chub <u>Semotilus atromaculatus</u>	Clear streams with clear bottoms
Plains red shiner <u>Notropis lutensis</u>	Clear streams and rivers
River carpsucker <u>Carpiodes carpio</u>	Large silty streams and rivers
Striped bass <u>Morone saxatilis</u>	Coastal waters, large lakes
Walleye <u>Stizostedion vitreum</u>	Clear deep lakes and rivers
Western golden shiner <u>Notemigonus crysoleucas</u>	Clear water with much vegetation
White bass <u>Morone chrysops</u>	Lakes and large rivers
White crappie <u>Pomoxis annularis</u>	Turbid lakes with vegetation
White sucker <u>Catostomus commersoni</u>	Bottoms of shallow lakes
Yellow bass <u>Morone mississippiensis</u>	Lakes, large rivers

Species	Habitat
<u>Reptiles:</u>	
Brown snake <u>Storeria dekayi</u>	Moist settings, cosmopolitan setting
Common garter snake <u>Thamnophis sirtalis</u>	Various habitats, fields, roadsides, often near water
Common water snake <u>Natrix sipedon</u>	Near water especially streams and ponds
Eastern hognose snake <u>Heterodon contortrix</u>	Swamps, brushpiles, rocky areas
Eastern ringneck snake <u>Diadophis punctatus</u>	In woods near water
Fox snake <u>Elaphe vulpina</u>	Prairies, woodland edges, outbuildings
Painted turtle <u>Chrysemys picta</u>	Cosmopolitan in fresh water habitats
Plains garter snake <u>Thamnophis radix</u>	Wet grasslands, shorelands
Racer <u>Coluber constrictor</u>	Varied habitat, including roadsides, swamps, fields
Ribbon snake <u>Thamophis sauritus</u>	Edges of streams, ponds, lakes
Smooth green snake <u>Opheodrys vernalis</u>	Grassy meadows, bogs, low brush
Snapping turtle <u>Chelydra serpentina</u>	Muddy aquatic habitats
Timber rattlesnake <u>Crotalus horridus</u>	Dry uplands, rocky areas, wastelands, swamp edges

Species	Habitat
<u>Amphibians:</u>	
Bullfrog <u>Rana catesbeiana</u>	Permanent bodies of water
Chorus frog <u>Pseudacris nigrita</u>	Damp woods, swamps
Common American toad <u>Bufo terrestris</u>	Cosmopolitan, urban, rural areas
Cricket frog <u>Acris gryllus</u>	Grassy borders of streams and swamps
Green frog <u>Rana clamitans</u>	Swamps, streams, lakes
Grey treefrog <u>Hyla versicolor</u>	Trees, bushes, fences, vines
Leopard frog <u>Rana pipiens</u>	Swamps, streams, lakes
Mudpuppy <u>Necturus maculosus</u>	Clear or muddy streams and ditches
Tiger salamander <u>Ambystoma tigrinum</u>	Usually below surface in woodlands

CHAPTER III. CULTURE HISTORY

This chapter is intended as a brief synopsis of existing knowledge concerning the region's culture history between approximately 12,000 B.C. and the present. It is divided into a number of chronological periods each of which is generally characterized by distinctive human adaptive strategies and material cultures.

As stated earlier, the amount of detail provided at this point is somewhat dependent upon its later analytical utility. Naturally, since chronological change is a central concern of archaeological science, the study of temporal variability was also an especially crucial component in the original research design of this study. As will be detailed later, however, the amount of temporally-diagnostic artifactual material recovered in the field was unexpectedly low. Consequently few sites could be accurately dated, and unfortunate limitations were placed on any real contributions in this regard.

PALEO-INDIAN PERIOD (12,000-8,000 B.C.)

The earliest activities of man in North America are characterized by the dominance of big-game hunting, an activity evidenced by distinctive lanceolate-shaped projectile points. The Paleo-Indian lifeway in Iowa is thought to be similar to the general Paleo-Indian tradition on the plains --that of nomadic big-game hunters. Paleo-Indian sites elsewhere have yielded information about how the hunters worked together to herd bison into man-made corrals or over cliffs or bluffs (Jennings 1978), and a number of other adaptive strategies.

The earliest remains of the Paleo-Indian period found in Iowa consists of Clovis spear points from the eastern, western and southern parts of the state. These date to approximately 12,000 years ago (Alex 1980:113). Most of these Clovis points are typologically similar to points found in the eastern woodlands. However, all the examples of Clovis points in Iowa have come from surface sites or in disturbed contexts and are not well documented (Alex 1980; McKusick 1964). At other sites in North America, Clovis points have been found with mammoth, horse, camel and bison remains. Artifacts from these sites include other varieties of fluted projectile points, choppers, abraders, knives, bone tools, and milling stones (Jennings 1978:190).

A later Paleo-Indian people, who depended on bison and other herd animals rather than the mammoth for food, are much better known (Jennings 1978:191). This late Paleo-Indian "Folsom Culture" is evidenced in Iowa. Folsom spear points are the distinctive artifact of this culture and have been found in association with bison remains. Again, most Folsom point sites are limited to surface finds in Iowa (McKusick 1964:45).

Later Paleo-Indian sites are also found in Iowa. The "Plano Culture" is characterized by non-fluted lanceolate projectile points. The Cherokee Sewer Site in northwestern Iowa produced remains of a possible Agate Basin point in association with bison remains in an excavated context. Radiocarbon determinations for this level of the site date to about 8500 \pm 200 years B.P. (Anderson and Shutler 1974:156).

One possible Late Paleo-Indian site was reported in the Rathbun Lake project area by McKusick and Ries (1962). The site, 13AN3, yielded a projectile point similar to those identified with the Plano Culture elsewhere. However, when the site was re-visited by McKusick and Ries and during the Missouri Basin Project survey, no other cultural materials were located. In addition, the actual "Paleo" point was lost, and identification was made on photographic evidence (McKusick and Ries 1962; Hoffman 1965).

ARCHAIC PERIOD (8500-1000 B.C.)

The Archaic period in Iowa is characterized by increased technological advances, the result of the utilization of a diversification of natural resources. In the western part of the state where the landscape was open, big-game hunting retained its dominance as the primary subsistence activity. This is similar to most of the western plains area during the Archaic (Jennings 1978). In the eastern part of Iowa, the milder post-pleistocene environment results in a more forested environment like that of the eastern woodland zone. The forested areas provided a wide variety of plant and animal resources for exploitation by the Archaic peoples. This has been termed "primary forest efficacy" by Caldwell (1958). The adaptation to a wider variety of food resources and the development of a specialized socio-economic system is thought to have supported a larger population during the Archaic period.

The characteristic artifact of the Archaic period is the triangular projectile point, with side- or corner-notching. Other stone artifacts include scrapers, ovoid blades, drills and notched flakes (Alex 1980:116). Ground stone food processing tools also make their appearance at this time,

evidence that plant food was an important resource. Manos and metates, as well as abraders and axes have been recovered from Archaic period sites. Bannerstones have been found at some eastern Iowa Archaic sites, suggesting the use of the atlatl or spear thrower. Bone artifacts are also numerous from this time period. Bone awls and scrapers were probably used for preparing animal hides for clothing. Copper artifacts are found in eastern North America during the Archaic. Deposits in the Great Lakes region provided raw copper which was hammered into various artifacts and then traded. A copper pin was found at the Olin site in eastern Iowa (Alex 1980:117).

Excavated sites of the Archaic period in Iowa include the Simonsen Site and the Cherokee Sewer Site in western Iowa; McKusick (1964) groups these sites into the Logan Creek Complex because of their similarities with the Logan Creek site in Nebraska. The Lungren and Hill sites in Mills County, the Soldow Site in Humboldt County, and the Ocheyedan Site in Osceola County, are thought to be archaic campsites. These sites are similar to Archaic sites in Illinois (e.g., Modoc Rock Shelter) and Missouri (e.g. Graham Cave) where a woodland environment resulted in a slightly different cultural adaptation.

Possible late Archaic habitation sites were reported in the Rathbun Lake project area by McKusick and Ries (1962:3). Typically, these sites were quite small and situated on small, sandy knolls in the floodplain. However, McKusick and Ries were unable to positively demonstrate that these sites were Archaic in age, and their exact temporal placement is still unknown. Other possible Archaic habitation sites have been reported in the project area (Weichman 1976a; Hoffman 1965). Grantham (1978) feels that two of the sites found in the area - 13AN52 and 13AN202 - belong to the "Prairie Archaic" period proposed by Anderson and Shutler (1974), based on excavations at the Cherokee Sewer Site and other sites from the Archaic period in the west. Both sites in the Rathbun Lake project area yielded diagnostic side-notched projectile points and chipping waste. The collection from 13AN52 also included other lithic tools (scrapers, drills, knives, bifaces) and a hammerstone (Weichman 1976). Site 13AN202 produced a milling stone and a mammal tooth (Hoffman 1965:25-26). A third Archaic site (13AN7), reported by Weichman (1976a) as an Early/Middle Woodland site, is possibly a Late Archaic occupation. Lanceolate projectile points recovered from the site are considered by Grantham (1978:26) to be similar to the Sedalia Lanceolate found in Late Archaic contexts in central Missouri (Chapman 1975).

WOODLAND PERIOD (1050 B.C.-A.D. 1000)

The appearance of pottery indicates the presence of Early Woodland peoples in Iowa. The earliest pottery type is called Marion Thick and has been found at sites in eastern Iowa. The vessels of this type are thick, straight walled, and flat bottomed. The temper is usually a large amount of grit, or occasionally fiber (Alex 1980:122).

Black sand and Spring Hollow Incised pottery characterize Early Woodland sites in eastern, central and northern Iowa. These pottery types are better made than Marion Thick and are decorated with cordmarking and incised designs.

Projectile points from the Early Woodland period are stemmed and corner- or side-notched. It appears they were still being used as spear points. Dominant point types include Raddatz Side-notched, Turkey tail, Waubesa Contracting Stem, and Snyders (Alex 1980:125).

An important ceramic tradition of the Middle woodland period in Central Illinois and Mississippi river valleys was the Havana tradition. This tradition spread to the Missouri River Valley and southwestern Iowa. Several large Middle Woodland village sites which date to about A.D. 1 and contain Havana pottery have been excavated in Iowa (i.e. Kingston, Wolfe, and Yellow River Valley Sites) (Alex 1980:123).

Many mounds of the Hopewell Complex have also been excavated in Iowa. The Hopewell Complex is a mortuary tradition which spread over eastern North America and occurred in Middle Woodland sub-period. Hopewell sites consist of burial mounds with associated grave goods, often of exotic raw materials. The elaborate artifacts found in the burial mounds may indicate that the buried person was of high social status. They also indicate the existence of a wide trade network throughout eastern North America. Many Hopewellian burial artifacts, such as pipes, figurines, axes, and projectile points are identical, whether recovered from a site in Iowa, New York or Florida (Alex 1980:123).

The transition from Middle to Late Woodland probably occurred around A.D. 500. At that time the large Havana villages were replaced by smaller Late Woodland campsites. Late Woodland burial mounds are very different from those of the Hopewell Complex. The exotic and elaborate burial goods are infrequent, and the mounds are smaller. In northwestern Iowa, effigy or animal-shaped mounds are associated with the Late Woodland period.

The pottery style of Late Woodland peoples is also markedly different. The vessels are more rounded and often fabric impressed. The use of a bow and arrow, rather than a spear, is evidenced by the small triangular projectile points associated with Late Woodland sites.

There is no direct evidence from sites in Iowa that cultivation of plants was practiced during Woodland times as in other parts of North America. However, the Woodland environment of southeastern Iowa provided a wide variety of plant and animal resources which could have sustained the large villages reported in that part of the state.

Many Woodland period sites have been reported in the Rathbun project area. Brown (1967) conducted excavations at several mound groups and campsites which were identified as "Early and Middle Woodland" or "Havana-Hopewell". The mounds excavated by Brown were "conical and oval tumuli situated on the crests of ridges" (1967:23). Most contained burials, and artifacts included Havana Tradition ceramics, hematite celts, and corner-notched and triangular projectile points. Brown states that the Rathbun mounds are related to the Hopewellian sites of northwestern Illinois, eastern Iowa, and the Effigy Mound sites of Wisconsin (1967:23). The campsites excavated or tested by Brown provided insufficient data for a precise cultural affiliation, but they "probably represent a single cultural complex of the Early or Middle Woodland period" (1967:24).

Weichman (1976b:12) feels that the presence of many mound groups in the Upper Chariton River Valley is further evidence of Woodland occupation although the information sufficient to pinpoint the particular cultures associated with these mounds is lacking. Weichman states that these mounds "probably represent a lengthy temporal relationship to several cultures, which were not limited in association to a single cultural complex" (p.12).

ONEOTA (A.D. 1000-A.D. 1800)

Sites representative of the Oneota Culture have been found throughout the midwest in Iowa, Illinois, Wisconsin, Minnesota, Missouri, Kansas, and Nebraska (Alex 1980:145). There are several theories as to the origin of Oneota Culture. Some archaeologists believe that Oneota culture is the result of a migration of peoples from the political and religious center of Cahokia. Others feel that Oneota and Cahokia were distinct groups, derived from a common Woodland cultural ancestor. The third theory is that Oneota evolved from an Upper Missouri Valley Woodland culture (Jennings 1978).

Early Oneota peoples cultivated corn, squash, and perhaps tobacco and beans. Hunting of bison and deer as well as fishing and gathering of wild plant foods completed their subsistence activities. The people probably lived in permanent villages most of the year, moving in the summer and winter for bison hunting. About A.D. 1200-1250 the climate of the Midwest changed significantly. Drier conditions prevailed which probably severely limited horticulture. Later Oneota sites produce a wider variety of hunting tools and numerous animal bones which suggest that hunting became more important as a result of the drier conditions (Alex 1980:147).

Oneota sites in Iowa are located along large rivers and their tributaries and are large village sites. Information from sites in other states indicate that sub-rectangular long houses with rounded ends were the typical house form. Trash and cache pit which are bowl or bell-shaped are characteristic of Oneota sites. The use of red pipestone or catlinite which was obtained from a source in southwestern Minnesota is another one of the characteristic features of Oneota culture (Chapman 1980:236).

Oneota sites on the upper Iowa River in northeast Iowa produced bison scapula hoes, mullers, axes, end scrapers, and knives (Jennings 1978:264-268). Oneota pottery is generally shell tempered with a rounded body and base, and a straight rim. Surface treatment is either plain or trailed. Representative types from northeast Iowa consist of Allamakee Plain and Allamakee Trailed (Jennings 1978:168; Alex 1980:146).

There are no recorded Oneota sites in the Rathbun Lake project area. Grantham (1978) feels that this may be due to the inability of the archaeologist to identify Oneota occupations because of substantial changes in the settlement pattern noted elsewhere during this period.

Oneota people intensively occupied the Northwest Prairie Regions of Missouri and were probably the ancestors of historic Siouan-speaking people (Chapman 1980:236). There are, however, no known Oneota (or Middle Mississippian) sites along the Iowa border or elsewhere in Chapman's Northeast Prairie Region in Missouri. Chapman hypothesizes that this region "may have been primarily a buffer area used for hunting or gathering during the Middle Mississippian Period" (1980:236). This may explain the lack of Oneota culture sites in the Rathbun Lake project area as well.

In Iowa the Oneota culture is thought to be the precursor of the Siouan speaking Ioway and Oto. Later Oneota sites which may represent the historic Omaha Indians produce many

European trade goods suggesting that European influences reached Siouan tribes in Iowa by the late 16th century (Alex 1980:148).

HISTORIC-ABORIGINAL

Most researchers believe that the Ioway and the Oto were the protohistoric residents of eastern Iowa (Jenning 1961; Straffin 1972). Ioway sites containing historic trade goods are reported in the Red Rock Reservoir along the Des Moines River. The Sauk and the Fox apparently assumed control of south central Iowa during the 17th century (Gradwohl 1974). Historic Fox sites are also reported in the Des Moines River area. In the Lake Rathbun project area, evidence of semi-permanent or seasonally occupied village sites of aboriginal populations occur on low sandy ridges in the floodplain (Weichman 1975:14). Sites containing various historic era materials, including glass trade beads, have been located in the project area (M. Weichman, personal communication).

HISTORIC PERIOD

Iowa was first discovered by white men in the summer of 1673 when the explorers Louis Joliet and Jaques Marquette left the missionary settlement of Mackinaw in search of the great river and wonderful land in the west of which they had heard (Ashton et al. 1893). Joliet and Marquette explored the eastern border of Iowa and claimed the area for France. For the next 100 years the French continued to explore the region and maintained trade relationships with the aboriginal populations. Trading posts and forts were built by the French, but no permanent settlements were established (Peterson 1952).

In 1762 the French gave the territory west of the Mississippi to the Spanish crown. In 1800 the land was receded to the French government who, in 1803 as part of the Louisiana Purchase, sold the territory to the United States (Ashton et al. 1893).

Various French traders, hunters, and trappers passed through Iowa and some French settlers established and operated lead mines in the late 1700's. Lead from these mines was used to manufacture bullets during the Revolutionary War (Peterson 1952:202). Americans explored the Upper Mississippi and Missouri rivers in the early 1800's. Temporary settlements were built by hunters and trappers, but the area remained closed to permanent settlement until the late 1830s.

In 1833, Iowa was part of the Michigan territory. When it was opened for settlement in this year, the city of Dubuque was founded. Early settlers came from the states of Kentucky, Tennessee, Virginia and Indiana. By 1846, the year Iowa was admitted to the union, the population of the state was over 100,000 (Ashton et al. 1893).

The Chariton River was never a major transportation route in southern Iowa and permanent settlement of the area did not begin until 1840. Most of the first settlers in the Chariton River Valley of Iowa came north from the state of Missouri.

In 1846 the Mormons, in their flight from Nauvoo, Illinois, westward to a new Zion, moved across southern Iowa. The Mormon Trail went from Sugar Creek (near Montrose) to Farmington, and then followed the present route of Highway 2. Temporary camps were set up along the trail and a principal camp was located near Centerville, in Appanoose Valley. The trail entered Appanoose county southwest of Moravia and went through Iconium. From there, several trails followed the ridges north of the Chariton River into Monroe, Lucas and Wayne counties (Sage 1974:77). Although the Mormons may have set up permanent camps in the Rathbun Lake Project area, no documented Mormon sites have been discovered (Weichman 1976:52).

For several years during Iowa's struggle to gain admittance as a state, there was also a dispute with Missouri over the boundary line between the two states. The line, originally surveyed by John C. Sullivan, veered slightly north on the eastern end of the boundary thus giving Missouri more land.

The dispute became a problem when a Missouri sheriff went to Van Buren County in Iowa territory to collect taxes. When the Iowan's refused to pay and several conferences did nothing to resolve the problem, Missouri militiamen appeared to engage in combat with the Iowan's. Some of the Missourians cut down several "bee trees" stored with honey and the entire conflict became known as the "Bee Trace War" or "Honey War." It was eventually resolved by the U.S. Supreme Court in 1849 who had the line resurveyed (Ashton et al. 1893).

Early settlers in the three-county project area were farmers. These settlers either settled on the open prairie land or cleared the wooded areas for crop land. Early farmers did not follow good farming practices. Livestock was allowed to run free and "sod corn" or "sod wheat" seed was simply dropped into the roughly plowed ground. However, by the 1860s better farming equipment was developed and better breeds of cattle, horses, sheep and hogs were imported from Europe (Sage 1974:100-101).

The 1850s brought heavier utilization of the Mississippi and Missouri rivers for transportation and the subsequent development of port towns. As railroads grew in importance, population centers moved from river port towns to areas closer to the rail lines. This resulted in more roads, more people, and more farming in the Rathbun Lake project area.

Coal mining was also an active industry in the project area in the late 19th century. In 1891 there were 58 coal mines operating in Appanoose County, and eight each in Lucas and Wayne counties (Ashton et al. 1893:40). The coal "boom" continued in the area until just after WWI. Appanoose County reached its peak population in 1920 with 30,000 inhabitants (Weichman 1976:62).

The post Civil War cash crop farming economy persisted from the late 1800's into the early twentieth century when cattle became an important economic factor. By the late 1930's livestock management had replaced, or equalled, cash crops as the dominant economic activity.

Agriculture remains an important part of south-central Iowa's economy. Crops such as corn, oats, hay, soybeans, and wheat are grown throughout the region. Hogs and cattle also contribute to the farm income (Petersen 1952). However, the settlement pattern in the area has changed much during the late 20th century. Farm lands are consolidated and while the number of farms has decreased, the average size of a farm has increased (U.S. Army Engineer District, Kansas City 1975). As in much of rural America, there has also been a shift in population from the farm to the big city. As a result, the population of many rural Iowa counties has decreased significantly in the 20th century.

CHAPTER IV PREVIOUS RESEARCH

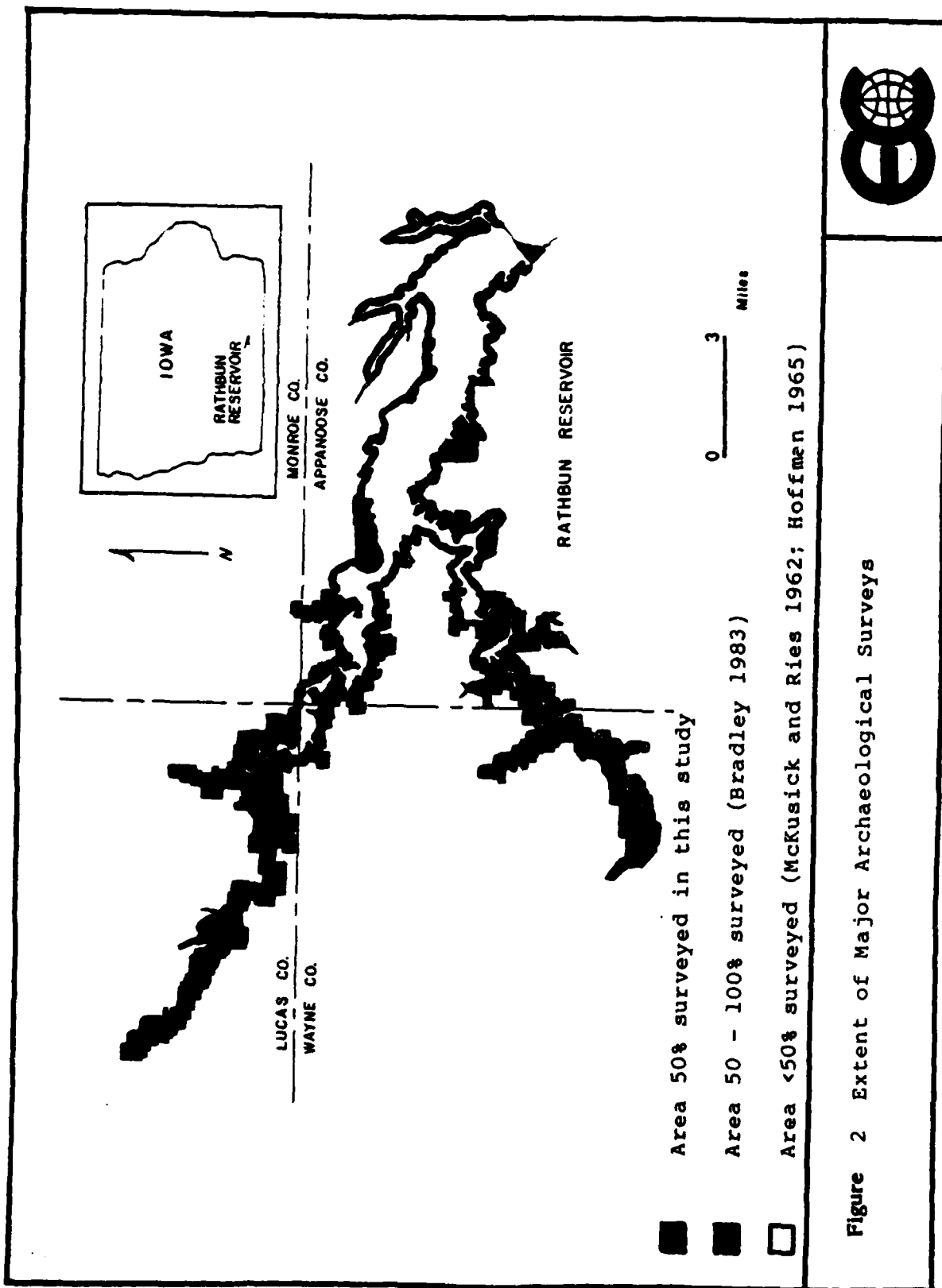
This chapter summarizes the previous, formal archaeological activities which have been conducted at Lake Rathbun. Readers are also directed to similar synopses contained in Grantham (1978), Bradley (1983), and other works. It should be noted that several of the works described will be discussed at greater length in the concluding chapter of this report, particularly as they relate to locational models in the region.

LAKE RATHBUN INVESTIGATIONS

The first archaeological work conducted in the Rathbun Lake project area was done by Richard P. Wheeler as part of the Smithsonian Institution's River Basin Surveys (Wheeler 1949). In 1948, Wheeler surveyed the dam site area and about nine miles along the Chariton River above the dam site. One prehistoric site was discovered (13AN1) which was described as a series of eight mounds. Lithic debitage was found on the surface of two undisturbed mounds and along the bluff south of the site, but no cultural affiliation was assigned.

McKusick and Ries (1962) conducted a large scale survey of the Rathbun Lake project area in 1961-1962 for the State University of Iowa. An attempt was made to contact collectors and landowners in the area in order to locate locally known sites. Sixty-two camp and mound sites were located during the reconnaissance, the majority of them located in Appanoose County. Twenty-five sites were found below the flood pool level and, thus, endangered by the construction of the dam (see Figure 2). The sites "consist of very small camps located on sandy knolls above the river bottoms" (McKusick and Ries 1962:2). Lithic debris and some Woodland pottery was recovered from these sites, and they have been tentatively identified as Late Archaic manifestations in the report (1962:3). McKusick and Ries recommended that one mound group (13AN16) be excavated and eighteen other sites in Appanoose and Wayne counties be tested. Information about the remaining thirty-seven sites is not available in the report.

After the State University of Iowa survey, the U.S. Army Corps of Engineers, Kansas City District, redefined the reservoir boundaries and the dam location and added recreational construction areas. Therefore, another survey was necessary to cover the additional areas. Archaeological investigations were conducted by the Missouri Basin Project in 1964 (Hoffman 1965). The purposes of the survey were to relocate previously recorded sites, to document new sites,



to test "the more imposing occupations," and to make recommendations for future work. Seven new sites were recorded, and twenty-two previously recorded sites were visited. Hoffman also describes individually the seventy-one sites recorded in the area of Rathbun Lake. Hoffman recommended that six mound group sites be excavated and five additional sites tested (1965:38).

In the summer of 1965, Lionel Brown (1967) conducted extensive excavations of archaeological sites in danger of being destroyed or damaged by construction of the Rathbun Dam and subsequent inundation. The investigation was part of the Smithsonian Institution River Basin Surveys. Ten sites were excavated, six of them mound sites. Five of the mounds consisted of oval tumuli located on the crests of ridges. Burials and cultural material were found near the centers of several of these mounds. The cultural affiliation of these sites was both Early and Middle Woodland. Brown (1967:23) feels they are associated with a general Hopewell-Effigy tradition. Five "campsites" were also excavated; four of these sites were Early or Middle Woodland manifestations. The remaining site probably represented a Middle and Late Woodland affiliation (Brown 1967:24).

After Brown's excavations, the dam was built, and the water impounded. The next investigations in the project area were conducted by Weichman in 1976. A cultural resource reconnaissance survey was conducted in the Chariton River Valley between the dam and Highway 5. Seven new archaeological sites were discovered in Appanoose County. Three of the sites (AN49, AN47 and AN51) had Woodland components, one site was determined to be "Prairie Archaic," and three of the sites contained no diagnostic materials (Weichman 1976a:27). One previously recorded site (AN15) could not be relocated. Weichman recommended that the two sites threatened with destruction (AN50 and AN52) be tested immediately to determine their significance (1976a:73).

Weichman (1976b) also surveyed the Lodge Complex project area north of Honey Creek in 1976. Two prehistoric sites were recorded, 13AN44 and 13AN45. Site 13AN44 contained a Woodland component, and no diagnostic material was recovered at 13AN45 (Weichman 1976b).

In 1978 Larry Grantham of Northeast Missouri State University developed a preliminary management plan for cultural resources at Rathbun Lake (Grantham 1978). The plan was developed for the U.S. Army Corps of Engineers in an attempt to begin an on-going program of assessing the cultural resources in the Rathbun Lake project area. Grantham (1978) outlined the indirect and direct impacts on re-

sources in the project area as well as recommendations for future work.

In 1978 David Benn and David Hovde of the Luther College Archaeological Research Center conducted intensive test excavations at site 13AN52 in the Rathbun Lake area (Benn and Hovde 1981). The site has both Woodland and Archaic components. Benn and Hovde (1981:iii) feel that the site did not meet the criteria for inclusion in the National Register of Historic Places because of the extensive destruction of the site from erosion.

The University of South Dakota conducted at 2525 acre survey in 1979 (Bradley 1983). Despite major differences in survey constraints (Bradley was confined to a shore-line study) a number of interesting comparisons can be made to the research being reported here (see Figure 2). The most notable include an extremely low yield of temporally-diagnostic artifactual materials and the lack of undisturbed subsurface cultural deposits. Out of 104 "findspots" only 8 were deemed "sites" and only 4 projectile points were recovered in this aspect of the survey (1983:269). Similarly, "with one minor exception" none of the 31 sites tested contained intact subsurface deposits (1983:i) and none could be nominated to the National Register. As stated earlier a number of studies mentioned in this chapter will receive a more detailed discussion in the concluding sections of this work. Naturally, Bradley's study figures prominently in this regard.

One final study which deserves mention at this point is a work on the Southern Iowa Rivers Basin by Gourley and Pemberton (1983). As they were apparently required to point out to critics, these authors have performed an extremely valuable service to the region's archaeology simply through an exercise in ordering the data-base.

They do, for example, at least provide a base for comparison with the chronological problems encountered in this investigation. Apparently, out of 153 sites recorded in the "Chariton subbasin" only 32 could be assigned to even the general temporal periods outlined in Chapter 3, and 8 of these were historic-period resources. Clearly, the work of Gourley and Pemberton (1983) will also be a topic later in this work.

CHAPTER V. RESEARCH DESIGN AND METHODOLOGY

The primary concerns of the C.O.E. as outlined in the scope of work for this investigation are comparable to most of the culture resource management efforts being conducted in this country. Basically these involve; 1) the location of archaeological sites in a surveyed portion of the project area 2) the evaluation of the significance of these sites in terms of the National Register criteria, and 3) the construction of a model capable of aiding in the prediction of resources in the unsurveyed areas. Accomplishing these goals requires background investigations, the design and execution of a sampling strategy, analysis, and interpretation of results.

Once obtained, it is intended that these results serve two, easily separable, functions. One involves assisting the contracting agency in managing their cultural resources as legally required. As this directly addresses the concerns of the client it is, to some degree, the more important. In doing so, however, it is hoped and intended that such studies can also fulfill a second function, that of making a contribution to archaeological knowledge.

LITERATURE SEARCH

Prior to initiating fieldwork, an intensive study of the project area was conducted. Preliminary inspection of aerial photographs, USGS topographic maps, soils maps, and U.S. Army Corps of Engineers tract and topographic maps was performed by the Crew Chief and Principal Investigator to increase survey efficiency.

In addition, a search of relevant literature and file sources was performed to document known sites located in and near the project area. The site files of the Iowa Office of State Archaeologist were examined as well as technical reports on file with the Corps of Engineers, Kansas City District. Locations and information about previously recorded sites in or near the project area were recorded in detail so these sites could be revisited by the survey team.

SURVEY SAMPLE SELECTION

In compliance with specifications in the Scope of Work, a sample of approximately 50% of the total ICC lands was selected. The sample consisted of all the odd-numbered sections lying within the ICC lease lands. A total of 27 odd-numbered sections are located within the ICC boundaries (see Figure 3). They contain approximately 6503.8 acres.

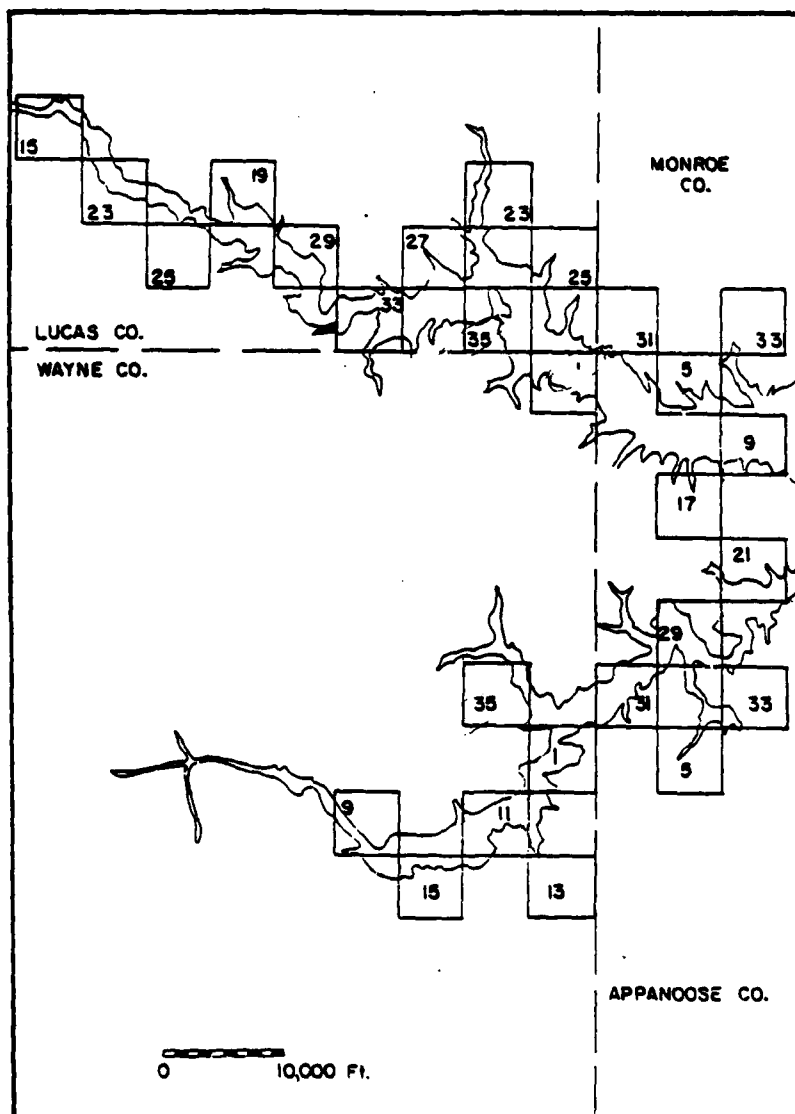
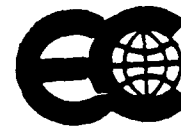


Figure 3 Location of odd-numbered sample areas at Rathbun Lake.



Each sample section was assigned a field number using "RAT" and numbers 1 through 27. Sample sections are identified by this field number throughout the report. ICC lease land boundaries were copied from Corps of Engineers topographic section maps onto project field maps. Each crew member was provided with a reduced section map for each sample section. ICC boundary lines were clearly indicated on each map. The section, their location, and the approximate acreage surveyed is found in Table 5. The number of acres surveyed in each section was variable, ranging from 35 acres to 560 acres.

FIELD RECONNAISSANCE TECHNIQUES

Between March and May 1981, an intensive field survey was conducted in sample sections of ICC lease lands in the Rathbun Lake project area. The purpose of the survey was to locate archaeological sites which were exposed on or near the present ground surface, or were buried in floodplain deposits. A walking survey of the entire project area was conducted by the Principal Investigator, Crew Chief, and three crew members.

Given the dense ground cover and the variety of topographic situations (see Plates 1 and 2), several kinds of survey techniques were employed. These are discussed below.

In floodplains and lands where sites may have been buried by rapid alluvial deposition, it was necessary to supplement surface survey with subsurface testing techniques. Crew members walked parallel transects 40-50 meters apart. Shovel tests were excavated every 50 meters by each crew member. Shovel tests were dug to a depth of 40-50 cm. The large number of dead trees and abundant vegetation covering parts of these bottoms, and the fact that they were occasionally marshy or under water, made survey of these areas difficult. When ridges or knolls were encountered in the floodplain, shovel test intervals were reduced to 10-20 m intervals in order to give these areas more intensive coverage than the surrounding bottom lands.

In wooded or pastured areas, and in plowed fields where the surface was obscured by crop litter or weeds, crew members walked parallel transects with 30-40 meter intervals between them. Along each transect, shovel tests were placed at 30 meter intervals. An average shovel test consisted of digging a 30 cm³ hole and visually inspecting the walls and backdirt for artifactual material. However, in plowed fields and other areas with good ground visibility, surface inspection alone was sufficient to discover sites.

Table 5.
Sample selection location and acreage

Sample Selection	Township	Range	Section	Acreage
RAT 01	T69N	R20W	1	365.5*
RAT 02	T69N	R20W	9	150.3
RAT 03	T69N	R20W	11	433.8
RAT 04	T69N	R20W	13	35.1
RAT 05	T69N	R20W	15	261.7
RAT 06	T70N	R19W	5	216.4
RAT 07	T70N	R19W	9	630.0
RAT 08	T69N	R19W	5	78.3
RAT 09	T70N	R19W	17	65.75
RAT 10	T70N	R19W	21	399.0
RAT 11	T70N	R19W	29	560.0
RAT 12	T70N	R19W	31	492.5
RAT 13	T70N	R19W	33	110.1
RAT 14	T70N	R20W	1	441.2
RAT 15	T70N	R20W	35	139.5
RAT 16	T71N	R19W	31	34.9
RAT 17	T71N	R19W	33	57.5
RAT 18	T71N	R20W	19	29.23
RAT 19	T71N	R20W	23	186.3
RAT 20	T71N	R20W	25	81.0
RAT 21	T71N	R20W	27	122.6
RAT 22	T71N	R20W	29	150.0*
RAT 23	T71N	R20W	33	465.6
RAT 24	T71N	R20W	35	562.5
RAT 25	T71N	R21W	15	134.5 *
RAT 26	T71N	R21W	23	242.9
RAT 27	T71N	R21W	25	57.7
TOTAL				6,503.88

*Section partially surveyed in connection with the 387.6 ac Wetlands survey conducted in October 1980. Acreage here reflects that portion of these sections not included in the Wetlands survey.



PLATE 1 - Wooded survey conditions in sample Section RAT22



PLATE 2 - Field stubble conditions at site 13AN69

All shovel tests were promptly backfilled. Whenever cultural material was recovered from a shovel test, other tests were excavated in the vicinity in an attempt to define the boundaries of potential sites and recover a sample of artifactual material.

When a crew member located artifacts or cultural evidence in his transect path, the other crew members were informed, and the area was intensively surveyed. While the crew chief filled out a field site form and recorded other pertinent information, the other members of the crew determined the boundaries of the site, collected artifacts, and relayed information to the recorder. Locations of the sites were recorded on copies of U.S. Army Corps of Engineers topographic maps. Cultural material recovered by the survey crew were bagged, and provenience information was recorded by site number and temporary survey tract numbers.

SITE CODING

Following discovery, each archaeological resource was analyzed in terms of its locational setting for the purposes of predictive modeling. A series of environmental variables was coded for each of the twenty-six sites (excluding the isolated finds) located during the survey of the Rathbun project area. A series of non-site localities was systematically selected from the project area for comparison with the sites. A point was plotted at the northwest corner of each 1/4 of 1/4 section falling inside the project boundaries (within the twenty seven odd-numbered sample sections). Thus, if an entire section was within the project boundary, a total of sixteen non-site localities would occur in that section (see Figure 2). In this way, one non-site point was plotted approximately every 16 hectares. A total of 163 non-site localities were plotted within the sample sections of the project area. These 163 non-sites were coded for all environmental variables and were used as a control sample for site location analysis. The environmental variables were based on those used by the Indiana University Glenn Black Laboratory in conjunction with the ORACLE system (Limp 1978). A list of these variables and a short description of how sites and non-sites were coded is presented below.

Field Identification Number - Archaeological sites were assigned permanent site numbers by the Iowa State Archaeologist's office. Non-site points were designated by the letter "R" followed by a three digit number. The numbers were assigned consecutively by section.

UTM Northing and Easting - The Universal Transverse Mercator coordinates based on the small blue tick marks on the margins of the USGS topographic maps were determined for all sites and non-sites.

Major Watershed - The major watershed for all sites and non-sites within the project area boundaries was either the North Fork or South Fork of the Chariton River.

Nearest Named Water - The nearest named water is the principal body of water in close proximity to the site as identified on the USGS topographic map. When a site is located near a small unnamed stream, but within the floodplain of a larger named stream, the larger named stream is considered the nearest named water.

Body or Hydrologic Type - The nearest water was coded as a: (1) stream or river, (2) spring, (3) lake, (4) oxbow, (5) swamp, or (6) lateral lake.

Class - This is the stream rank order in the Strahler system. Generally, streams are ordered from their origins beginning with a stream order of one. When two streams of rank order one come together, the resulting stream is a rank order two. When two streams of rank order two come together, the resulting stream is rank order three, etc. If a one and two come together, the resulting stream is still rank order two. Streams must be of the same order when intersecting in order for the rank to change. When the nearest water is an unnamed stream, it is the unnamed stream rather than the nearest named water that is coded for class.

Intersection - This is the presence or absence of a stream intersection within 200 m of a site. If only one body of water is involved, a "0" is recorded. When two streams intersect, it is the class (stream rank order) of the intersecting stream that is coded as the intersection. If the site or non-site point lies on the smaller stream, the intersecting stream is the larger one. If the site lies on the larger stream, the intersecting stream is the smaller one. In the event that a site is near multiple intersections, the larger stream is coded.

Direction - Direction is the direction from the site or non-site to the nearest water. This does not refer to intersection. Codes are: N, NE, E, SE, S, SW, W, and NW.

Distance - This is the shortest distance (in meters) from the edge of the site to the nearest water. This does not refer to intersection.

Elevation of Water - This is the elevation (in feet above sea level - MSL) of the nearest water source as represented on the USGS or U.S. Army Corps of Engineers topographic maps.

Elevation of Site or Non-Site - This is the elevation (in feet above sea level - MSL) of the center point of the site or the non-site, taken from the USGS or U.S. Army Corps of Engineers topographic maps.

Topographic Setting - This is a three digit numerical code for topographic feature. The features and their codes are:

Floodplain Features:

- 060 Floodplain Flats
- 040 Floodplain Ridge
- 010 Natural Levee
- 061 Riverbank/Buried
- 045 Terrace Remnant on Floodplain

Terrace Features:

- 101 First Terrace Margin
- 111 First Terrace Flats
- 102 Second Terrace Margin
- 112 Second Flats
- 103 Third Terrace Margin
- 113 Third Terrace Flats

Slope Features:

- 210 Talus
- 230 Hillside
- 200 Bluff Base
- 220 Low Terminal Ridge Spur
- 240 Bench

Bluff Top Features:

- 510 Bluff Top
- 530 Bluff Top, Head of Gulley
- 500 Bluff Top, Ridge Spur

Upland And Watershed Features:

- 300 Upland Flats
- 320 Watershed Knob
- 330 Watershed Saddle
- 340 Watershed Ridge Crest

Slope - The difference between the highest and lowest contours within a 500-foot radius of the site or non-site was calculated to determine a percentage of slope.

Aspect - The direction toward which the slope of the site, or the slope nearest the site, faces. Codes are: N, NE, E, SE, S, SW, W, and NW.

Soil 1, Soil 2, Soil 3 - Soils were determined from Soil Conservation Service county soil surveys. SCS codes were used. Soil 1 is the soil underlying the site or non-site locality. Soil 2 is the major soil (by area) within 2,000 m in any direction from the site. Soil 3 is the next most major soil in the 2,000 m circle.

Aerial Photo Surface - All sites and non-sites were coded for broad categories of surface vegetation. These were determined from examination of aerial photos of the project area. The four major categories and their codes are:

- (0) Water
- (1) Forest
- (3) Pasture
- (4) Cultivated

Topo Map Surface - Surface vegetation was also determined from examination of USGS topographic maps, and all sites and non-sites were coded as follows:

- (0) Water
- (1) Forest
- (3) Non-forest

The list of variables provided above is meant to insure as comprehensive as possible and analytic framework for the location of sites. Many of the variables listed above have demonstrated utility in previous research on site prediction. Preliminary predictive models of site location have been used in the Taylorsville Reservoir (Sorensen et al. 1980), Fort Knox (O'Malley et al. 1980), and Big South Fork (Hutchinson et al. 1981) projects using a set of environmental variables similar to those listed above. A predictive model of site location using environmental variables and a control sample of non-site points was also developed for the Central Leaf River Basin in Mississippi (Padgett and Heisler 1979).

Our list of variables is both long and comprehensive because previous studies of site location have shown that site location is correlated with a large number of factors.

Predictive models which posit single factor or single cause site locations are overly simplistic and seldom adequate from the viewpoint of either researchers or cultural resource managers.

SITE TESTING

Eight of the fifty-seven sites located or re-located during the initial survey were determined to need further testing. The decision to further test a site was based on four criteria:

1. degree of preservation exhibited by the archaeological deposits;
2. nature of the archaeological material within the site and its potential capacity for clarifying the research problems;
3. hypothesized role which the site played within the total settlement system; and
4. potential for inclusion of the site on the National Register of Historic Places.

The specific testing procedure used for each site selected for further work varied, depending on the nature of the site in question. A detailed description of the particular test investigations conducted at each site is found in Chapter VII. Several different kinds of investigative methods were employed including augering, test unit excavation, intensive general surface collection, controlled surface collection, or a combination of several of these techniques. The results of these activities are described in chapters VII and VIII.

LABORATORY METHODS

Processing the artifacts consisted of washing, sorting and labeling. Preliminary washing and sorting of artifacts recovered during the survey phase was accomplished in the field. This enabled the crew to evaluate the artifact assemblages recovered from each site and helped to decide which sites required further work. The goals or artifact processing were to prepare the artifacts for analysis, preservation, and long-term curation. All cultural materials recovered from both the survey and testing phases were brought to ECI's Lexington office. Once in the lab, the artifacts were thoroughly cleaned. The methods of washing used were those developed to best preserve the artifacts. Lithic materials, especially tools, were cleaned with hard bristle brushes. Ceramics, both prehistoric and historic,

were brushed on the edges with wet soft bristle brushes. The surfaces were cleaned with soft brushes in order to preserve surface treatment. Prehistoric ceramics were only immersed in water for a short period of time, when necessary, in order to prevent their cracking in the future. Historic ceramics, however, have been fired at a higher temperature and are less friable. Other historic artifacts-glass, brick, metal, etc. were washed using hard bristle brushes.

Sorting of artifacts involved two stages. The first stage, rough sorting, occurred in the field or during washing. This entailed sorting the artifacts with basic categories: lithic tools, lithic debitage, prehistoric ceramics, historic ceramics, metal, glass, and other artifacts. Final sorting consisted of placing artifacts into functional, typological and/or descriptive categories. Results of their analysis can be found in Chapter VII.

Artifact cataloging followed the Smithsonian system, i.e., 13AN64/8. Upon completion of the project, the artifacts and other documents related to the project will be submitted to the Iowa Office of State Archaeology for curation.

CHAPTER VI. RESULTS OF TESTING

The archaeological sites and findspots located in the survey areas are shown in Figure 4. This figure is keyed to Table 6 as well as to the more specific information on Tables 7 and 8. Individual sites and findspots are described in greater detail in Appendix 1. Site forms and site locations plotted on U.S.G.S. maps have been submitted to the Kansas City District Office of the U.S. Army Corps of Engineers and to the Iowa State Historic Preservation Officer.

During this survey, localities which produced about a half-dozen artifacts or less were designated as "isolated finds" by their discoverers. This was true even though some of the previously recorded "sites" had less materials attributed to them.

Excluding these findspot localities, 26 "sites" remained amenable for modeling purposes or further investigation. These 26 sites have been listed in Table 10. Only 8 of these are newly recorded in this survey - AN64, AN66, AN69, WE64, WE65, WE66, and WE67. Information concerning the extent of previous work at the known sites, and who recorded them, is contained in Appendix 1.

A total of eight sites were chosen by the field investigators as worthy of more intensive levels of investigation, either through test pitting or systematic surface collection. These were apparently chosen based upon their perceived potential to contain intact, sub-plowzone deposits, or due to their dense concentration of surface artifacts. All other localities encountered were considered to lack these qualities, and thus were deemed to be neither significant nor worthy of further investigation.

The following section presents the results of these investigations conducted on these eight sites by ECI in the spring of 1981. The sites are arranged numerically by county.

13AN18

Site 13AN18 is located on a low, floodplain terrace, peninsula on the south shore of Rathbun Lake. The site was first discovered by Hansen and Ries in 1962, who reported Middle Woodland pottery and lithic on the surface. It should be noted that the ECI survey team designated a historic component on the same peninsula as site 13AN67, despite a lack of total spatial separation.

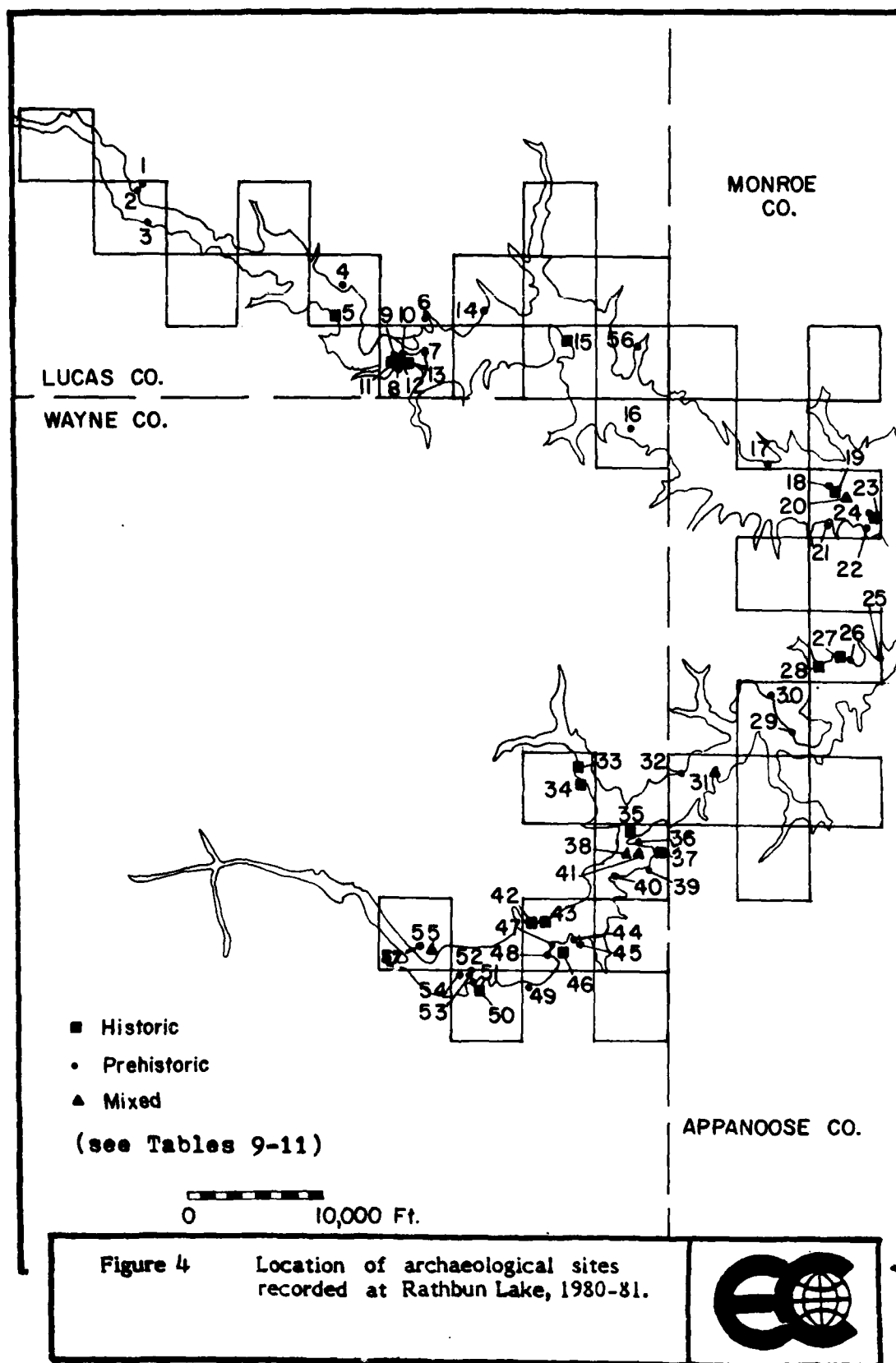


TABLE 6 - Site Map Numbers

1.	13LC02	29.	AN09
2.	LC01	30.	AN01
3.	LC04	31.	AN36
4.	LC03	32.	AN04
5.	LC011	33.	WE08
6.	LC11	34.	WE09
7.	LC4	35.	WE67
8.	LC06	36.	WE10
9.	LC09	37.	WE63
10.	LC08	38.	WE7
11.	LC13	39.	WE17
12.	LC010	40.	WE15
13.	LC12	41.	WE8
14.	LC012	42.	WE07
15.	LC05	43.	WE06
16.	WE66	44.	WE13
17.	AN69	45.	WE14
18.	AN21	46.	WE010
19.	AN64	47.	WE52
20.	AN66	48.	WE51
21.	AN02	49.	WE01
22.	AN03	50.	WE65
23.	AN18	51.	WE02
24.	AN67	52.	WE03
25.	AN05	53.	WE64
26.	AN07	54.	WE04
27.	AN08	55.	WE35
28.	AN06	56.	LC013
		57.	WE05

Table 7.
Summary of sites

Site #	Test Investigations	Map Number (Fig. 4)	Cultural Affiliation	Site Type
13AN18	Controlled surface collection and test units	23	Mississippian/Oneota	Campsite
13AN21		18	Unidentified prehistoric	Unknown
13AN36			Historic	Unknown
13AN64	Controlled surface collection and test units	19	Early Twentieth Century	Historic trash scatter
13AN66	Test units	20	Mississippian/Oneota and Twentieth Century	Lithic scatter/ Historic trash scatter
13AN67	Test units	24	Twentieth Century	Historic trash scatter
13AN69	Test units	17	Middle Archaic and Middle Woodland	Lithic scatter
13LC4		7	Unidentified Prehistoric	Unknown
13LC11		6	Middle Woodland	Campsite (?)
13LC12		13	Twentieth Century	Historic trash scatter
13LC13		11	Unidentified prehistoric	Historic trash scatter
13WE7	Augering	38	Late Nineteenth Cent. and Unidentified prehistoric	Historic mill site
13WE8	Augering	33	Early Twentieth Century	Historic trash scatter

Site #	Test Investigations	Map Number (Fig. 4)	Cultural Affiliation	Site Type
13WE10		36	Unidentified prehistoric	Lithic scatter
13WE13		44	Unidentified prehistoric	Lithic scatter
13WE14		45	Unidentified prehistoric	Lithic scatter
13WE15		40	Unidentified prehistoric	Unknown
13WE17		39	Unidentified prehistoric	Unknown
13WE35		55	Unidentified prehistoric	Lithic scatter
13WE51		48	Unidentified prehistoric	Lithic scatter
13WE52		47	Unidentified prehistoric	Lithic scatter
13WE63		37	Twentieth Century	Historic Trash scatter
13WE64		53	Unidentified prehistoric	Lithic scatter
13WE65		50	Twentieth Century	Historic Trash scatter
13WE66		16	Unidentified prehistoric	Lithic scatter
13WE67	Test units	35	Middle Woodland (?) and Unidentified prehistoric	Campsite (?)

TABLE 8
SMALL RECORDED FINDSPOTS

Site #	Map Number (Fig. 4)	Cultural Affiliation
13ANO-1	30	Unidentified prehistoric
13ANO-2	21	Unidentified prehistoric
13ANO-3	22	Unidentified prehistoric
13ANO-4	32	Unidentified prehistoric
13ANO-5	25	Unidentified prehistoric
13ANO-6	28	Unidentified historic
13ANO-7	26	Late Middle Woodland
13ANO-8	27	Unidentified historic
13ANO-9	24	Unidentified prehistoric
13LCO-1	2	Unidentified prehistoric
13LCO-2	1	Unidentified prehistoric
13LCO-3	4	Unidentified prehistoric
13LCO-4	3	Unidentified prehistoric
13LCO-5	15	Multi-component
13LCO-6	8	Unidentified prehistoric
13LCO-8	10	Unidentified historic
13LCO-9	9	Unidentified prehistoric
13LCO-10	12	Unidentified prehistoric
13LCO-11	5	Unidentified prehistoric
13LCO-12	14	Unidentified prehistoric
13LCO-13	56	Unidentified prehistoric
13WEO-1	49	Unidentified prehistoric
13WEO-2	51	Unidentified prehistoric
13WEO-3	52	Unidentified prehistoric
13WEO-4	54	Unidentified prehistoric
13WEO-5	57	Unidentified prehistoric
13WEO-6	43	Unidentified prehistoric
13WEO-7	42	Unidentified historic
13WEO-8	33	Unidentified prehistoric
13WEO-9	34	Unidentified prehistoric
13WEO-10	46	Unidentified prehistoric

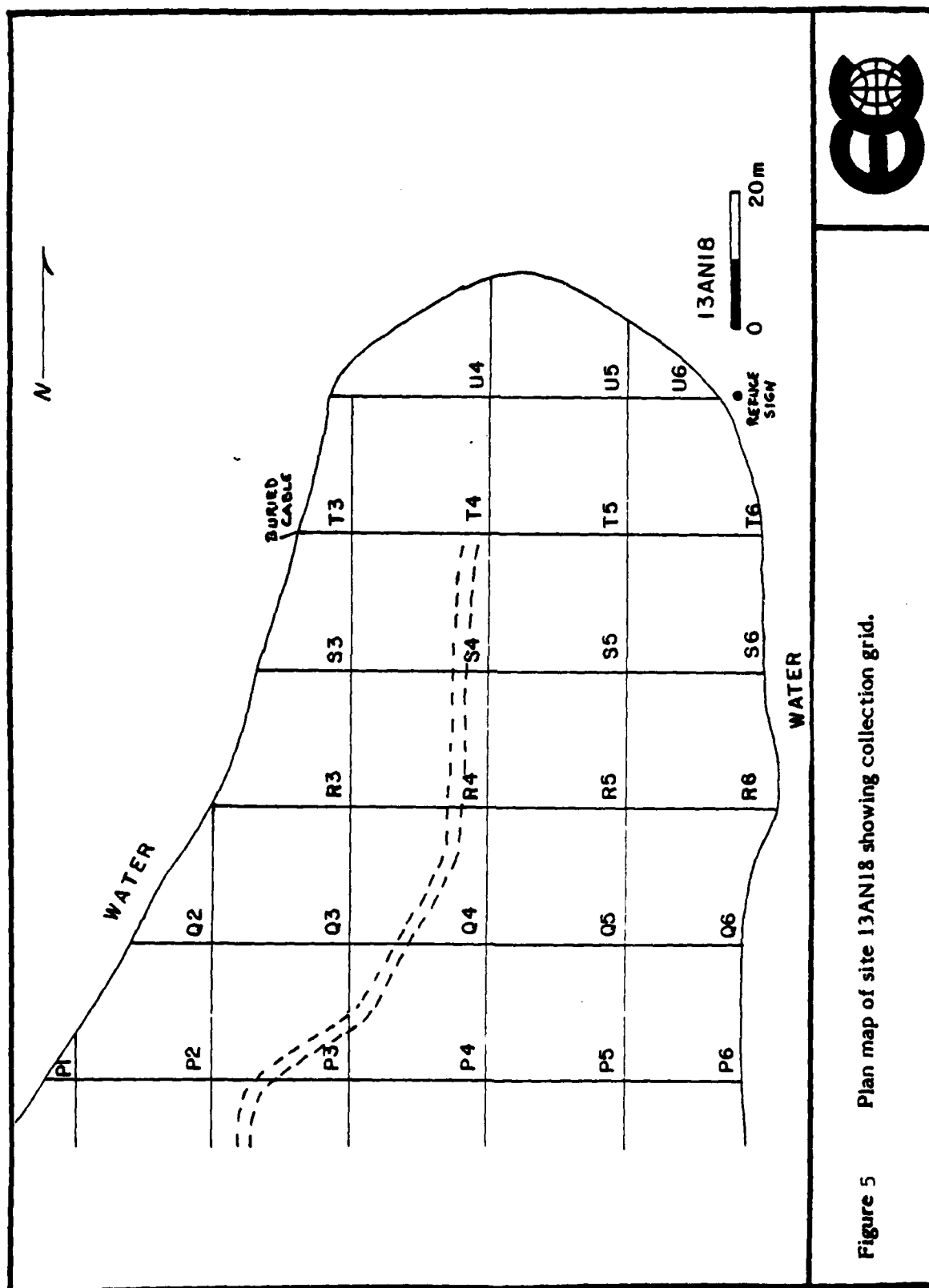
A controlled surface collection was performed at site 13AN18 after surface inspection revealed the cultural material was widely dispersed over the peninsula. Repeated shovel tests produced no subsurface materials. The artifact density was fairly low, so 20 m² blocks were chosen as the grid size (Figure 5). In addition to the controlled surface collection, five test units and one bank profile were dug at the site.

Four of the test units were excavated to 20 cm below surface. One test unit was dug to 30 cm below surface. The bank profile was dug to 35 cm below surface. In all cases artifacts were limited to flakes and all were recovered in the first 5 cm. The surface (3-6 cm) of the peninsula is a dark, loose sandy soil.

Below the dark topsoil, a most yellowish sandy clay loam was encountered. No artifacts were found below the top sandy layer. An outcrop of broken red and black colored slate occurs on the southeast section of the peninsula. It probably underlies the entire peninsula. Some till-derived rock was found while excavating the test units. Based on soil maps and surface inspection of the site, the Weller soil probably occurs along the sandy middle, higher section of the peninsula. The more clayey soil along the outside edges of the site are probably the Mystic soil type.

The continual wave action of the lake is causing the northwest edge of the peninsula to collapse. A steep bank is currently slumping into the water. On the southeast side of the peninsula mud and sand are being deposited on top of the slate. The entire surface of the peninsula is quite sandy and supports little vegetation. Trees are limited to small cottonwoods and willows. The lack of adequate surface vegetation, the continual wave action of the lake, and the wind have contributed to general surface deflation. It is probably the result of this deflation of the surface that so much cultural material was found at this site. The lack of subsurface deposits also supports this conclusion.

Analysis of the materials collected at site 13AN18 points to a late occupation at the site. A Mississippian triangular projectile point was recovered from the site as well a six sand and grit tempered potsherds. One sherd has a cordmarked surface and the remaining five have eroded surfaces. McKusick and Ries reported a Middle Woodland sherd as well as some undiagnostic lithic artifacts at the site in 1962 (McKusick and Ries 1962:18). McKusick and Ries felt the site had "little salvage potential" (1962:18). Site 13AN18 is not recommended for any further work because of its lack of diagnostic materials and the absence of subsurface



deposits. Based on the analysis of materials recovered during the present investigations and information from previous work at the site, it is not considered likely to contribute additional significant data to our understanding of the prehistory of the Rathbun Lake area, and, therefore, is not considered eligible for nomination to the National Register of Historic Places.

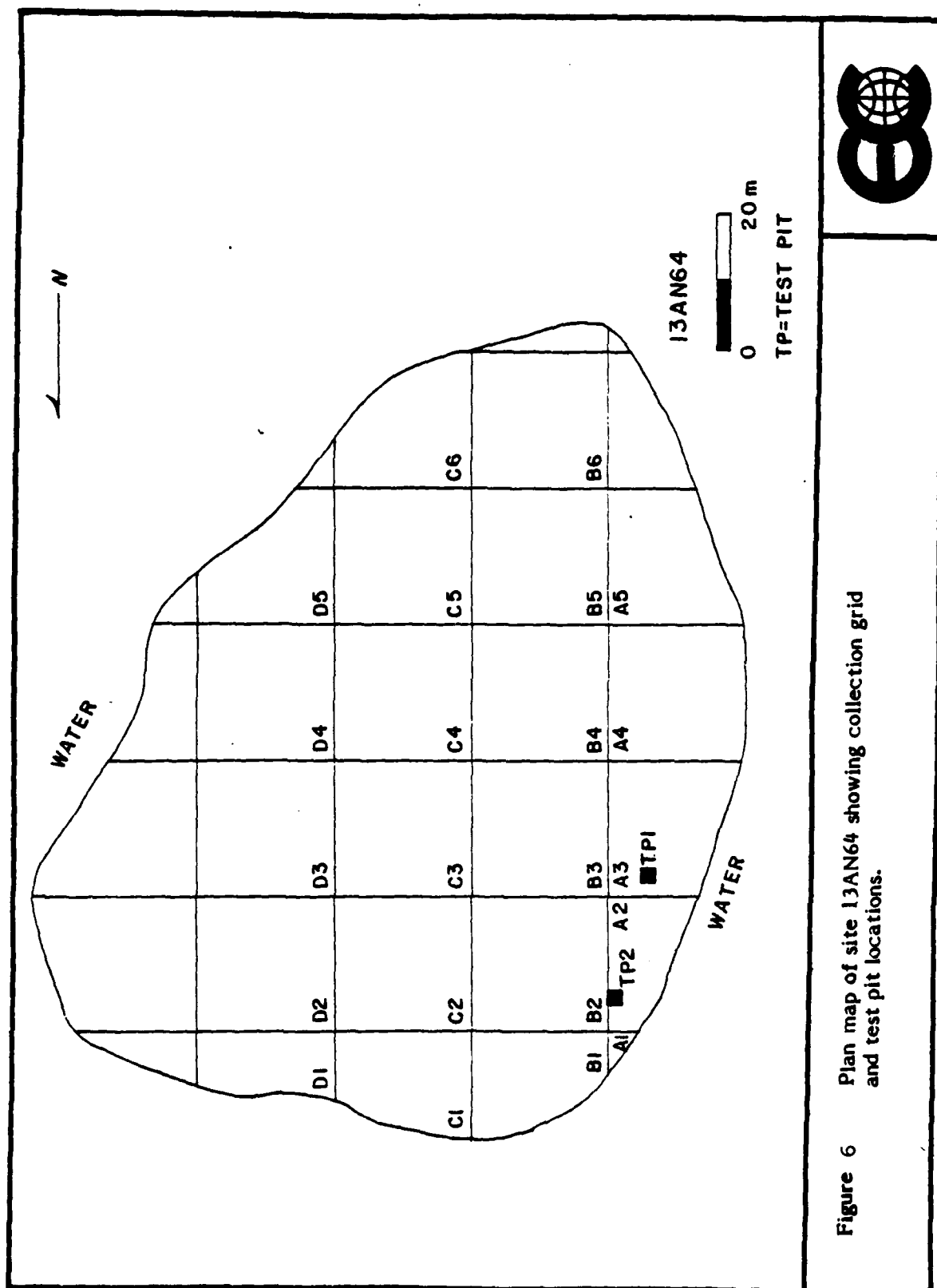
13AN64

Site 13AN64 is located on an island in Rathbun Lake. Charles Ebel recovered prehistoric materials from this area in 1962 (13AN21) and stated that the site had recently been destroyed by construction of the Cross Farm. The Cross Farm is apparently the historic component designated here as AN64. No evidence of 13AN21 was discovered. Although no structural remains could be located, a large amount of historic materials were scattered over most of the island. After an initial visit to the island and surface inspection of the site revealed a dense concentration of artifacts, we decided to do a controlled surface collection. This would help to indicate any potential building locations and refuse areas of the original farmstead. The site was collected in 20 m x 20 m squares within a N-S E-W grid covering the entire island (Figure 6). Two test units were dug on the side of the island where the heaviest concentration of artifacts occurred. The test units were excavated to 20 cm below surface, but no artifacts were recovered below the top 2-3 cm of topsoil. Four auger holes were dug in the middle of the site where the ground was slightly elevated. No artifacts were recovered from the auger holes. Analysis of the historic materials recovered from site 13AN64 indicates that the site was occupied between from the middle 1900s until the dam was constructed and the farmstead was destroyed in the 1960's.

Although the density of historic artifacts at site 13AN64 was quite high, most were not temporally or functionally diagnostic. The artifact collection from the site is not considered sufficient to demonstrate historic significance, and, therefore, 13AN64 is not deemed eligible for nomination to the National Register of Historic Places. It is also not recommended for any additional investigation.

13AN66

Site 13AN66 is a multi-component site located on a peninsula on the north side of Rathbun Lake. The area was previously planted in corn, and corn stubble remained on part of the peninsula. Near the kill zone along the beach is the area where both prehistoric and historic artifacts from site 13AN66 were found. The prehistoric artifacts were widely scattered along the beach while the historic material was more localized (Figure 7).



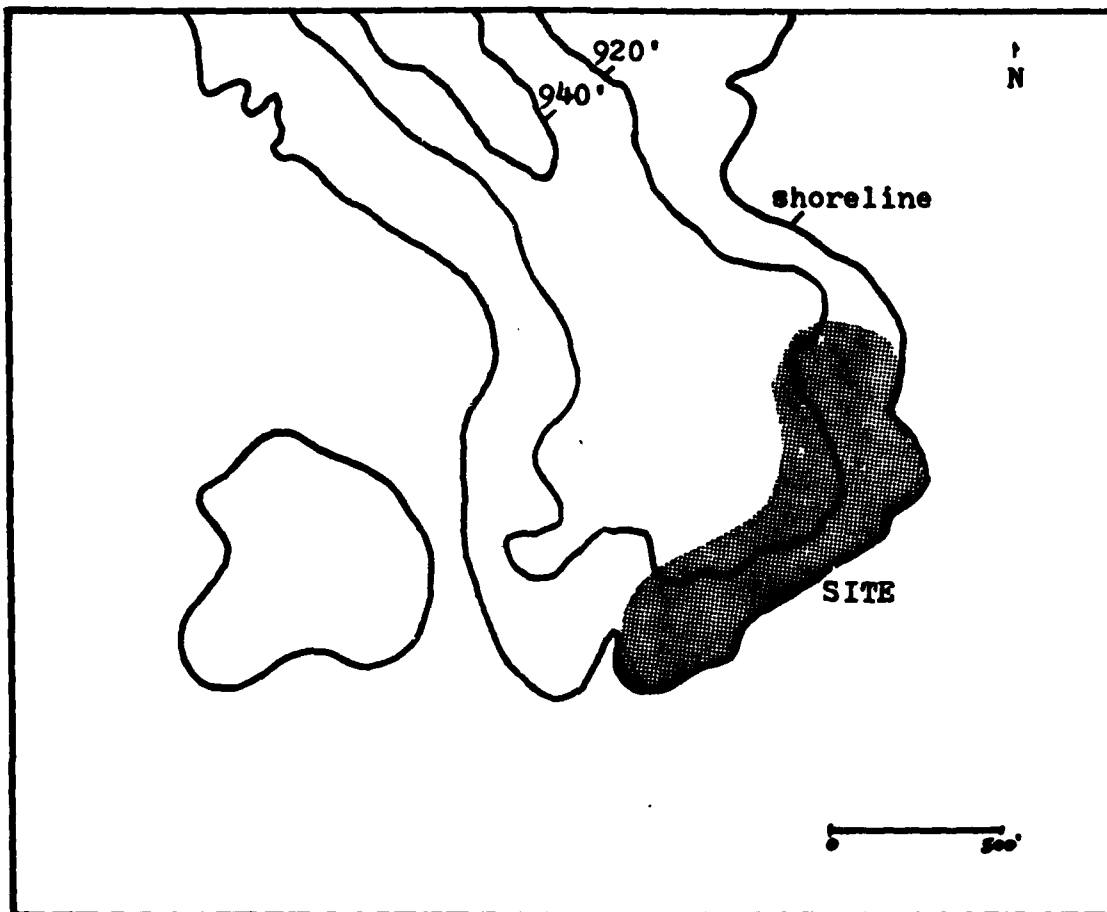


Figure 7 - General Location of 13AN66

Eight 1 m x 1 m test units were excavated at the site in an area along the beach about 100 m long. The test units were dug to 20-30 cm below surface. The top 2-3 cm of soil on the peninsula is a dark sandy soil. Directly under the topsoil is a yellow-brown clay. No soil changes appeared in the first 20-30 cm of each test unit. The soil appeared to be quite disturbed by the continual water level fluctuation of the lake. No cultural material was recovered below the surface. Auger holes were dug in the base of each test unit in an effort to determine if there were any deeper cultural deposits or significant soil changes.

Two Mississippian triangular projectile points were recovered from the site as well as other lithic artifacts. Analysis of the material collected from the surface of site 13AN66 suggest that a late prehistoric (Mississippian/Oneota) campsite was located here. The historic material from the site was temporally undiagnostic, but the historic component of the site is dated to the 20th century.

No further work is recommended for this site, and it is not considered to be eligible for nomination to the National Register. The cultural material recovered from the site was confined to the surface which is subject to continual disturbance from the water of Lake Rathbun. The historic material is neither functionally or temporally diagnostic. The majority of the prehistoric material is not diagnostic, and the Mississippian/Oneota component is, therefore, not considered likely to add significant data to the prehistoric background of the Rathbun Lake area.

13AN67

The historical site 13AN67 is located on the same peninsula on Lake Rathbun as site 13AN18 (Plate 1). Unfortunately, the historic and prehistoric components were assigned separate site numbers at the time of discovery despite the lack of total spatial separation. A detailed discussion of the site and the test unit excavations has been previously discussed under 13AN18.

The historic materials were confined to the surface of the peninsula and were recovered mostly from the northern end of the peninsula. A wide variety of historic artifacts were recovered from the site and suggest a farmstead may have been located here. The diagnostic bottle glass bases found at the site dated from 1920 to the present. However, several yellowware sherds were found which were manufactured much earlier, between 1840-1900. The historic component of



PLATE 3 - 13AN18/13AN67 - Surface conditions



PLATE 4 - 13AN69 - Surface conditions

the site probably represents a twentieth century farmstead. The lack of subsurface material and the meager amount of temporally and functionally diagnostic artifacts resulted in a decision to recommend no further work for the site. The material does not seem to demonstrate historic significance, and the site is not considered eligible for nomination to the National Register.

13AN69

This lithic scatter is located on a ridge finger on a sandy beach off Rathbun Lake (see Plate 4). Two projectile points, flakes, and other debitage were recovered during the initial survey of the site. Four 1 x 1 m test units were excavated in the areas of the site where the heaviest artifact concentrations were found. Test units were dug to 30 cm below surface. The first 5 cm consist of sandy soil. Below this, from 6-18 cm the soil becomes more clayey, with some sand. The last 12 cm of the soil in the test units were very heavy, orange clay. Only one flake was recovered from the test units.

Auger holes were dug in the base of each test unit in order to identify further soil changes or buried cultural material. No artifacts were recovered in auger holes, and the soil remained an orange-colored clay. Although quite a few lithic artifacts were recovered from the site, no subsurface cultural deposits were located in the test units, shovel tests, or auger holes.

Surface cultural material was lightly scattered along the beach. The surface of the site is continuously subjected to water level fluctuation from the lake. Since the artifacts seem to be confined to the surface, it is probable that the material is a result of the continual deflation of the surface from the lake waters. Although the diagnostic artifacts (Jakie Stemmed and King's Corner Notched projectile points) recovered from the site indicate Middle Archaic and Middle Woodland affiliations, the integrity of the site is questionable. The lack of subsurface deposits, the low artifact density, and the limited number of diagnostic artifacts recovered from site 13AN69 indicate that the site is not of National Register significance. Therefore, no further work is recommended for this site (Figure 8).

13WE7

This late nineteenth century site is located on a small knoll in the Chariton River floodplain. It is reportedly the location of a nineteenth century mill called Barker's Mill. Surface collection, augering and shovel tests at the site revealed a small amount of historic material, mostly

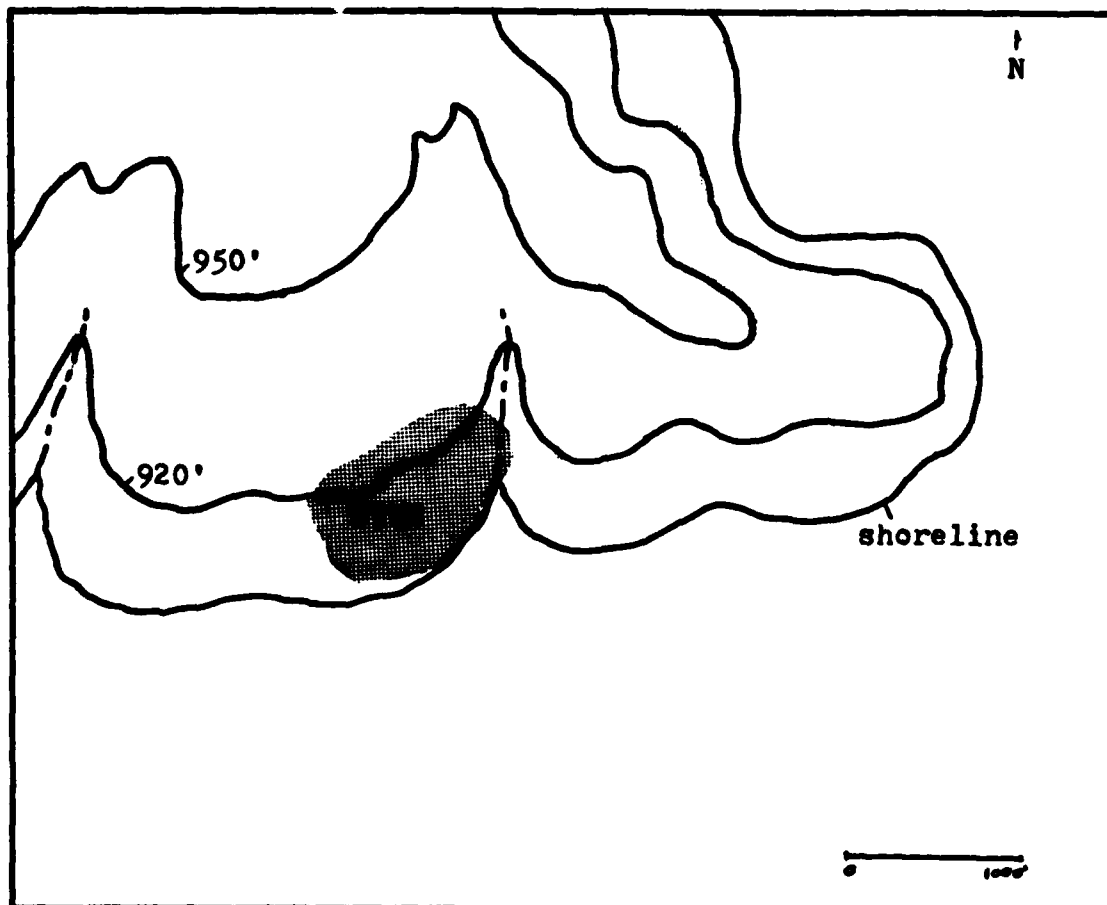


Figure 8 - General Location of 13AN69

ceramics. Auger holes were placed around the perimeter of the knoll (Figure 9). A total of twenty-seven auger holes were excavated. The plow zone on the site appears to be about 20 cm deep. A local farmer concurred that the area had been plowed to a depth of seven to eight inches. All cultural material was confined to the plowzone and seemed to be concentrated in the southeast portion of the knoll. All surface material was collected from the crest of the knoll on the E-SE side of the site. A local collector (M.M. DeVore personal communication 1981) said that five historic graves were located near the middle of the knoll, and numerous prehistoric artifacts were found on the north slope of the knoll. No evidence for this was found during our investigation. The prehistoric materials located at site WE7 were confined to the surface and were temporally non-diagnostic.

Although site 13WE7 was intensively investigated, very little cultural material was recovered. It has apparently been a favorite site for amateur collectors. It was reported that historic coins, as well prehistoric points and celts were previously collected from the site. This may be part of the reason for there being few materials recovered during the present investigations.

Site 13WE7 is not considered to be of National Register significance because of the lack of diagnostic materials and the low artifact density at the site. No further work is recommended for site 13WE7.

13WE8

Site 13WE8 is located in the Chariton River floodplain on a small knoll across an old meander from site 13WE7. Shovel tests during 1980 had uncovered historic material, so additional shovel tests and augering were conducted at the site during the present investigations. Twenty-five auger holes were placed across the knoll in east-west rows (Figure 10). Previous surveys of McKusick and Ries in 1962 reported prehistoric material. However, the augering and shovel testing produced only a small amount of historic material. Again, the material was generally confined to the first 20 cm or plowzone. The majority of the materials were historic ceramics. The presence of a transfer-printed ware and a spongeware point to an early twentieth century time frame. However this temporal association is tentative.

Although local informants attested to both prehistoric and historic materials being found at 13WE8, a very light scatter of material was recovered at the site. The lack of more diagnostic material and the light density of artifacts in spite of concentrated subsurface testing makes this site

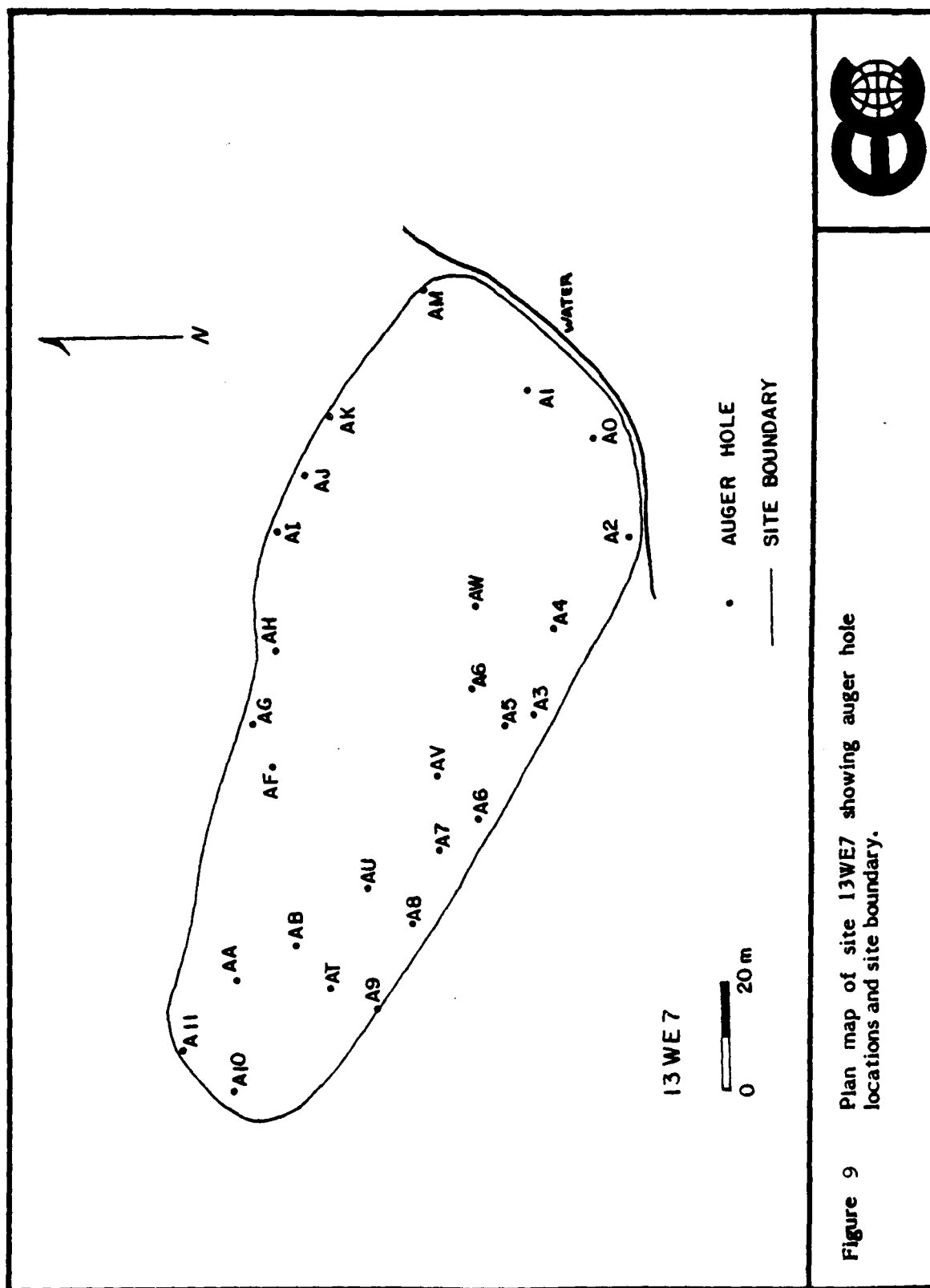


Figure 9 Plan map of site 13WE7 showing auger hole locations and site boundary.



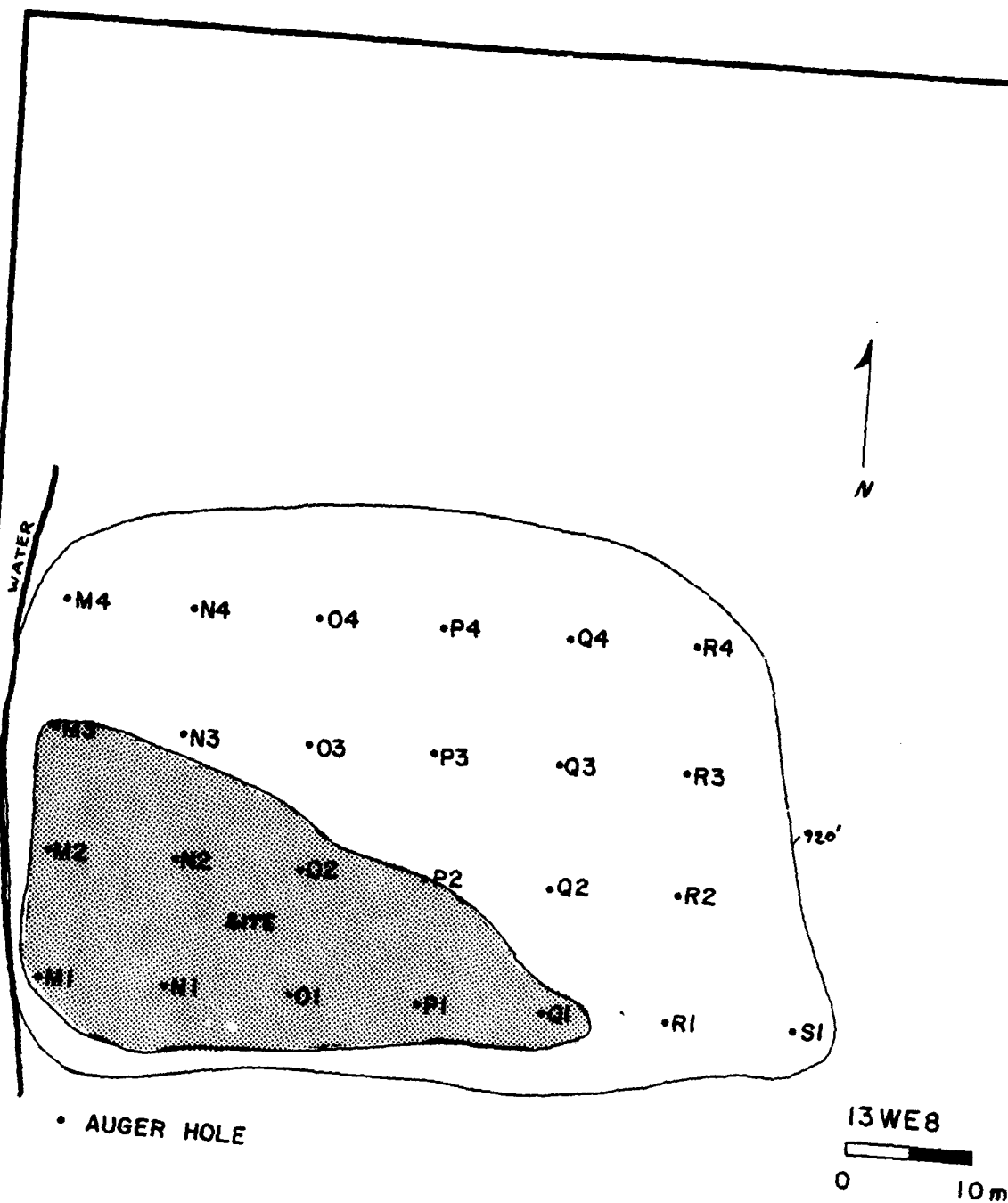


Figure 10 Plan map of site 13WE8 showing auger hole locations.



ineligible for the National Register of Historic Places. No further work is recommended for site 13WE8.

13WE67

Eight 1 m x 1 m test units were excavated at site 13WE67 after surface collection revealed a moderately dense scatter of prehistoric lithic materials. Four test units were dug to a depth of 30 cm, three were dug to a depth of 40 cm, and one was dug to 50 cm below surface. The majority of the cultural material was found in the top 20 cm. The plowzone varied from 20-30 cm below surface. The plowzone soil was a clayey loam, dark gray-brown in color. The next 10-20 cm of soil were more sandy and yellowish-brown in color.

The site had been farmed for many years and was still in corn stubble during the present investigations. A local collector (M.M. DeVore personal communication 1981) claimed that lithic debitage and points had been repeatedly recovered from the site. The majority of the material located on the surface and in test units was prehistoric lithic debitage. However, several prehistoric potsherds were also recovered. Analysis of these ceramics identified six pieces of the cordmarked as related to Middle Woodland Havana Cordmarked type. The remaining three shreds are eroded and sand/grit tempered. Unfortunately, no other diagnostic materials are present in the site collection.

Site 13WE67 is not recommended for further work because of the small amount of diagnostic materials and the very light density of subsurface deposits. It is not considered likely to contribute significantly to our understanding of the prehistory of the Rathbun Lake area and, therefore, is not considered eligible for nomination to the National Register of Historic Places (Figure 11).

SUMMATION

Table 7 presents a summary of the sites located during the survey Rathbun Lake and includes the cultural affiliation and site type. Table 8 records the small findspots discovered and their cultural affiliation. Both are keyed to Figure 4. As noted, none of the sites investigated appeared to have sufficient contextual integrity or information potential to construct an argument for their nomination to the National Register of Historic Places. The implications of these unfortunate results are discussed further in the following chapter.

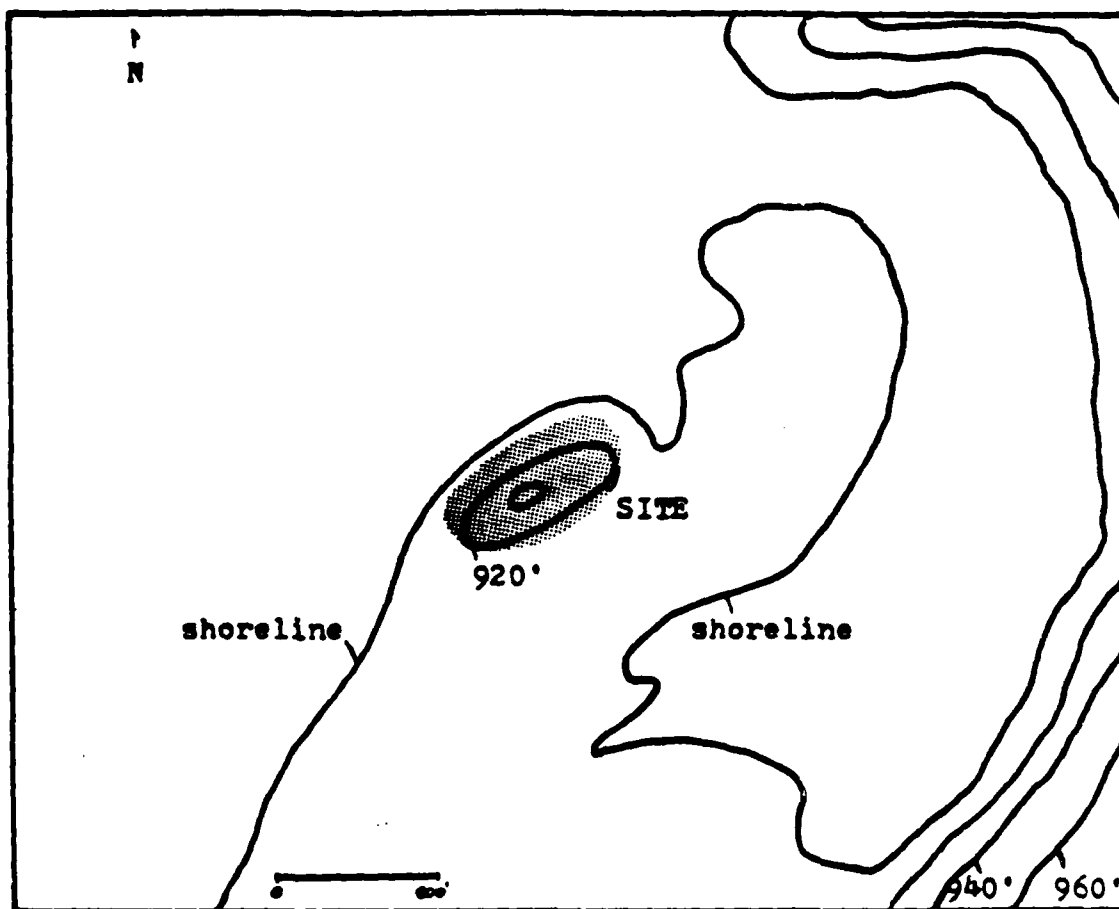


Figure 11 - General Location of 13WE67

CHAPTER VII. MATERIALS RECOVERED

This chapter provides a description of all artifact types collected during this investigation. Four major groups of artifacts are delineated: prehistoric chipped stone, prehistoric ground stone, prehistoric ceramics, and historic materials. Under each section, specific types are defined and described. Illustrations of some representative types were included in the 1980 report (Pollack et al. 1980) and have not been republished into this report. Drawings of other materials are included below.

PREHISTORIC CHIPPED STONE

The artifacts in this group are shaped by chipping or flaking. Chipped stone artifacts are produced by a reductive process which produces flakes and other debitage as by-products (Collins 1971). By trimming the stone material, a desired tool shape is achieved. Materials most often used for chipped stone tools include chert, quartzite, and quartz.

Technological analysis of chipped stone manufacture followed the lithic reductive model developed by Collins (1975). In this model, the processes of chipped stone manufacture are seen as a series of six ordered stages: 1) acquisition of raw materials, 2) initial reduction, 3) primary flaking, 4) secondary flaking, 5) use, and 6) recycling (reuse or discard). Figure 12 is a schematic representation of this lithic technological system. In order to reconstruct these six stages, various categories based on functions, or types of lithic were formulated. These were: raw material type, core, flakes, and tools. All were observed as being complete or broken. A count was taken within each category.

Material type was divided into two categories: chert and non-chert. Most of the material in the non-chert category was white quartzite, with some quartz. Table 9 shows the percentages of chert vs. non-chert for each artifact type. The breakdown of chert vs. non-chert is fairly consistent throughout the different artifact types. There are, however, no projectile points made from a non-chert material. In addition, only three biface fragments were made from a non-chert material. This may indicate a preference for chert as a raw material for the manufacture of formal chipped-stone tools. Unfortunately, the small number of tools recovered prohibits a more detailed analysis of raw material type.

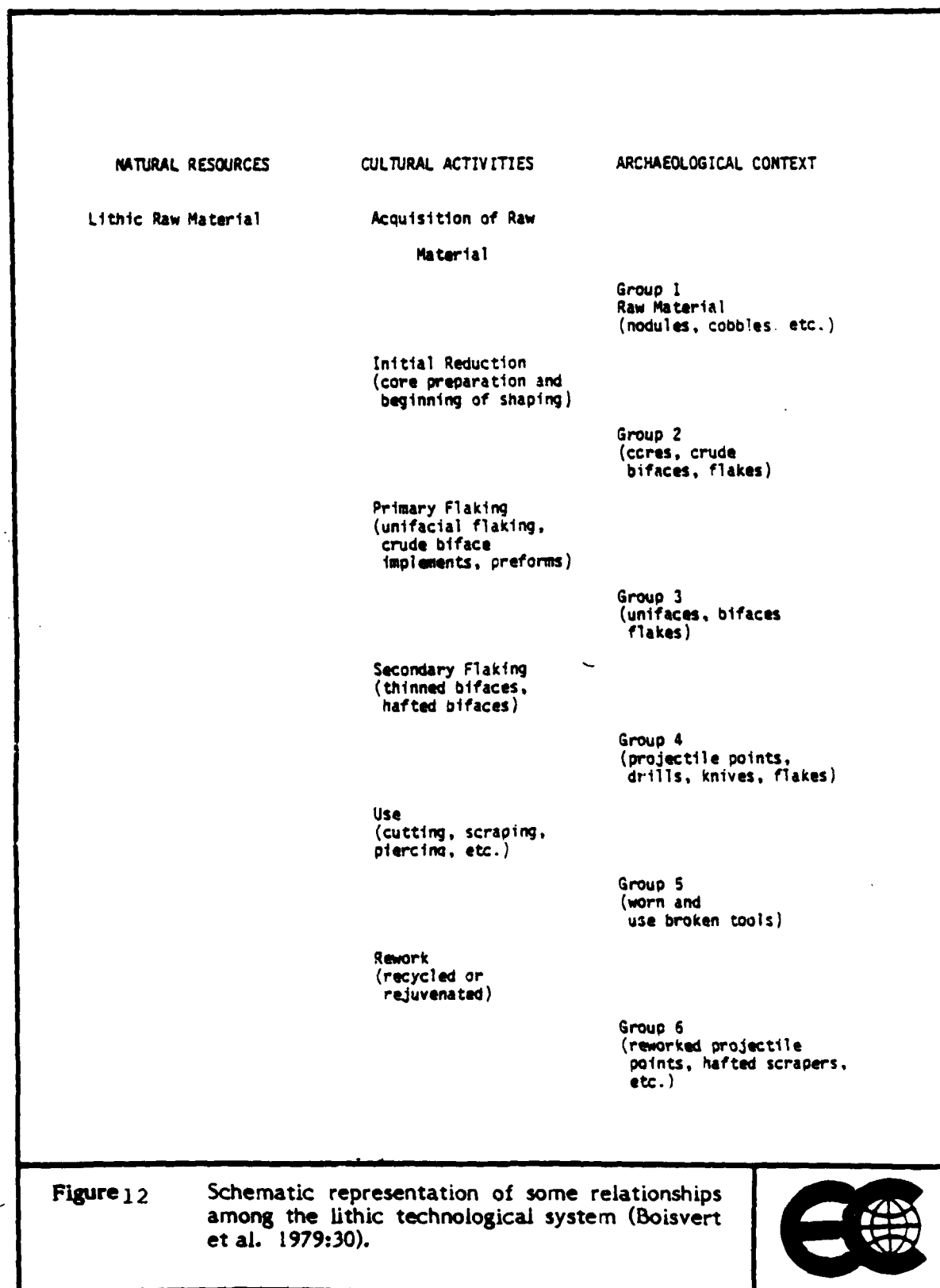


Figure 12

Schematic representation of some relationships among the lithic technological system (Boisvert et al. 1979:30).

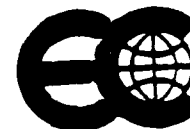


Table 9.
Lithic artifact frequency, type and raw material classes

Artifact Type	Frequency	Percent Chert	Percent Non-Chert
Flakes	789	85%	15%
Chunks	87	77%	23%
Cores	11	72%	27%
Marginally Modified Flakes	20	80%	20%
Systematically Modified Flakes	18	88%	12%
Bifaces	43	93%	71%
Projectile Points	9	100%	0%

Tools recovered were also assigned to a series of functional categories on the basis of general morphology (Table 10). Cost considerations mitigated against more refined procedures such as microwear analysis. Projectile point types have been determined based on typologies established for the area. The low occurrence of lithic tools prevented analysis from going beyond a descriptive stage.

Cores and Core Fragments

Cores are irregular to subangular shaped artifacts with multiple facets. It is from these that chipped stone artifacts are produced. Flake scars are prominent, and original chert cortex is present on some specimens. Core fragments are angular pieces of stone which have been removed from a core subsequent to removal of flakes. Core fragments usually contain natural flaws and represent portions of a core discarded during the lithic reduction process.

Frequency: 8 chert, 3 non-chert

Distribution: AN18 1 chert
AN66 1 non-chert
LC11 3 chert, 2 non-chert
WE51 1 chert
WE67 2 chert
WEO-1 1 chert

Flakes

Flakes are by-products of lithic manufacture. They are usually characterized by a striking platform, a bulb of percussion, a smooth interior and an exterior surface which may display flake scars or cortex. Items placed in this category show no evidence of utilization.

Frequency: 669 chert, 120 non-chert

Distribution: AN18 304 chert, 49 non-chert
AN21 2 chert
AN66 80 chert, 27 non-chert
AN69 24 chert, 2 non-chert
LC4 2 chert, 1 non-chert
LC11 76 chert, 21 non-chert
WE7 14 chert, 3 non-chert
WE10 2 chert
WE13 12 chert, 3 non-chert
WE14 3 chert, 2 non-chert
WE17 1 chert
WE35 8 chert
WE51 12 chert, 1 non-chert

Table 10.
Synopsis of Lithic Tools Recovered

Locality	Marginally- Modified Flakes	Systematically- Modified Flakes	Bifaces	Projectile Points
AN18	5	6	15	2
AN66	8	7	4	5
AN69	1	0	3	2
LC4	1	2	1	0
LC11	2	1	6	0
WE15	1	0	0	0
WE17	0	0	1	0
WE35	1	0	2	0
WE64	1	0	2	0
WE66	0	0	1	0
WE67	<u>0</u>	<u>2</u>	<u>8</u>	<u>0</u>
TOTAL	20	18	43	9

WE52 2 chert
 WE63 1 chert
 WE64 4 chert, 2 non-chert
 WE66 88 chert, 1 non-chert
 WE67 94 chert, 2 non-chert

ANO-1 2 chert
 ANO-2 1 chert, 1 non-chert
 ANO-3 1 non-chert
 ANO-4 1 chert
 ANO-5 2 non-chert
 ANO-9 1 chert
 LCO-1 1 chert
 LCO-4 2 chert
 LCO-5 4 chert
 LCO-9 5 chert, 1 non-chert
 LCO-10 1 chert
 LCO-11 1 chert
 LCO-13 1 chert, 1 non-chert

Chunks

This class of debitage consists of small blocky and thick angular pieces of stone which have resulted from the shattering of chert nodules or cores. They differ from flake debitage in that they do not exhibit characteristics such as striking platforms, bulbs of percussion or flake scars.

Frequency: 67 chert, 20 non-chert

Distribution: AN18 22 chert, 10 non-chert
 AN66 7 chert
 AN69 3 chert, 1 non-chert
 LC4 1 chert
 LC11 22 chert, 5 non-chert
 WE7 2 chert, 1 non-chert
 WE13 1 chert
 WE67 8 chert, 3 non-chert
 LCO-3 1 chert

Marginally Modified Flakes

Marginally modified flakes are those flakes which display evidence, especially in the form of edge crushing or small nibbling. Utilization is not extensive, nor does it result in an edge with a systematic shape. The retouch is almost always unifacial and restricted to the lateral edges. The overall shape of these artifacts varies considerably and most are irregular.

Frequency: 16 chert, 4 non-chert

Distribution: AN18 4 chert, 1 non-chert
AN66 7 chert, 1 non-chert
AN69 1 chert
LC4 1 chert
LC11 1 chert, 1 non-chert
WE15 1 non-chert
WE35 1 chert
WE64 1 chert

Systematically Modified Flakes

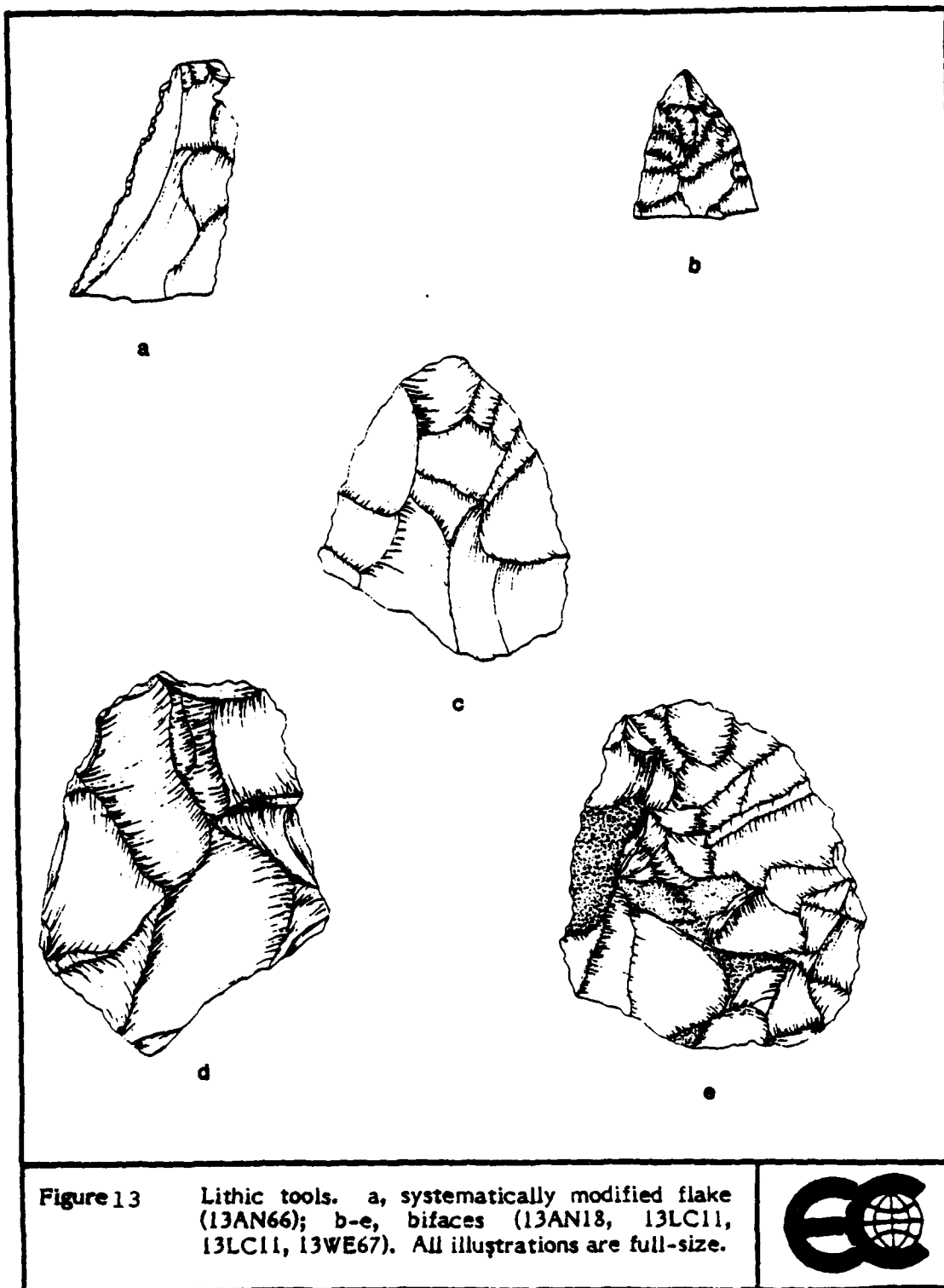
These flakes (Figure 13a) exhibit unifacial flaking in limited areas and in specific configurations. They differ from marginally modified flakes in that the use wear is much more extensive. The systematic modification of these flakes indicates that they were utilized as implements.

Frequency: 16 chert, 2 non-chert

Distribution: AN18 4 chert, 2 non-chert
AN66 7 chert
LC4 2 chert
LC11 1 chert
WE67 2 chert

Bifaces

Bifaces are bifacially flaked tools which have been thinned to produce a roughly triangular or ovoid shape (Figure 13b-c). Most thinning is produced by pressure flaking or soft hammer flaking. Bifaces and biface fragments have been divided into three reductive stages: initial reduction, primary flaking, and secondary flaking. Initial reduction bifaces or biface fragments can be differentiated by the crude flaking present on the specimens. Flake scars are usually large and produced by direct percussion techniques. There is no apparent evidence for preparing the edge for use, but grinding is occasionally observed as a result of platform preparation. Primary reduction bifaces are distinguished by moderate to large flaking. Flaking scars are generally smaller than on initial reduction items and may be produced by soft or hard hammer percussion. Secondary reduction bifaces are distinguished by the presence of pressure flaking and small soft hammer flaking. These flaking techniques are used to produce a specific artifact shape or blade edge. These artifacts are generally considered to be used for knives or projectile points. Fragments are usually lumped under a biface category if no specific projectile point shape can be discerned.



The "complete biface" category includes bifacial tools that do not have shafting elements or specific shapes and cannot be assigned to types. Several biface fragment categories are also used. When possible, biface fragments have been assigned to "tip," "mid-section" or "base" categories.

Frequency: 4 complete chert, 1 complete non-chert
36 chert fragments, 2 non-chert fragments

Distribution:	<u>Chert</u>	<u>Non-Chert</u>
	<u>AN18</u>	
	5 initial reduction fragments	1 secondary reduction tip
	1 initial reduction tip	
	1 complete initial reduction	
	2 primary reduction fragments	
	4 primary reduction tip	
	1 primary reduction mid-section	
	<u>AN66</u>	
	1 primary reduction base	
	1 primary reduction mid-section	
	2 primary reduction fragments	
	<u>AN69</u>	
	2 secondary reduction tips	1 unidentified tip
	<u>LC4</u>	
	1 primary reduction tip	
	<u>LC11</u>	
	1 primary reduction tip	1 complete, initial reduction
	4 primary reduction fragments	
	<u>WE17</u>	
	1 initial reduction fragment	
	<u>WE35</u>	
	1 initial reduction tip	
	1 complete initial reduction (probably aborted)	

WE64

2 primary reduction fragments

WE66

1 initial reduction fragment

WE67

1 initial reduction base
2 complete initial reduction
4 primary reduction fragments
1 primary reduction mid-section

Projectile Points

Projectile points are particularly important since many are diagnostic of temporal period or cultural affiliation. Morphologically, these artifacts are secondarily chipped bifacial tools which are hafted to spears, darts, arrows or knives. They differ from the biface category in that they have been specially shaped, usually by pressure flaking, and distinctive styles can often be recognized by the analyst. Comparisons of point styles have been made with published archaeological sources and type names obtained where possible (see Figure 14).

Type: Mississippi Triangular Figure 5a-d, g

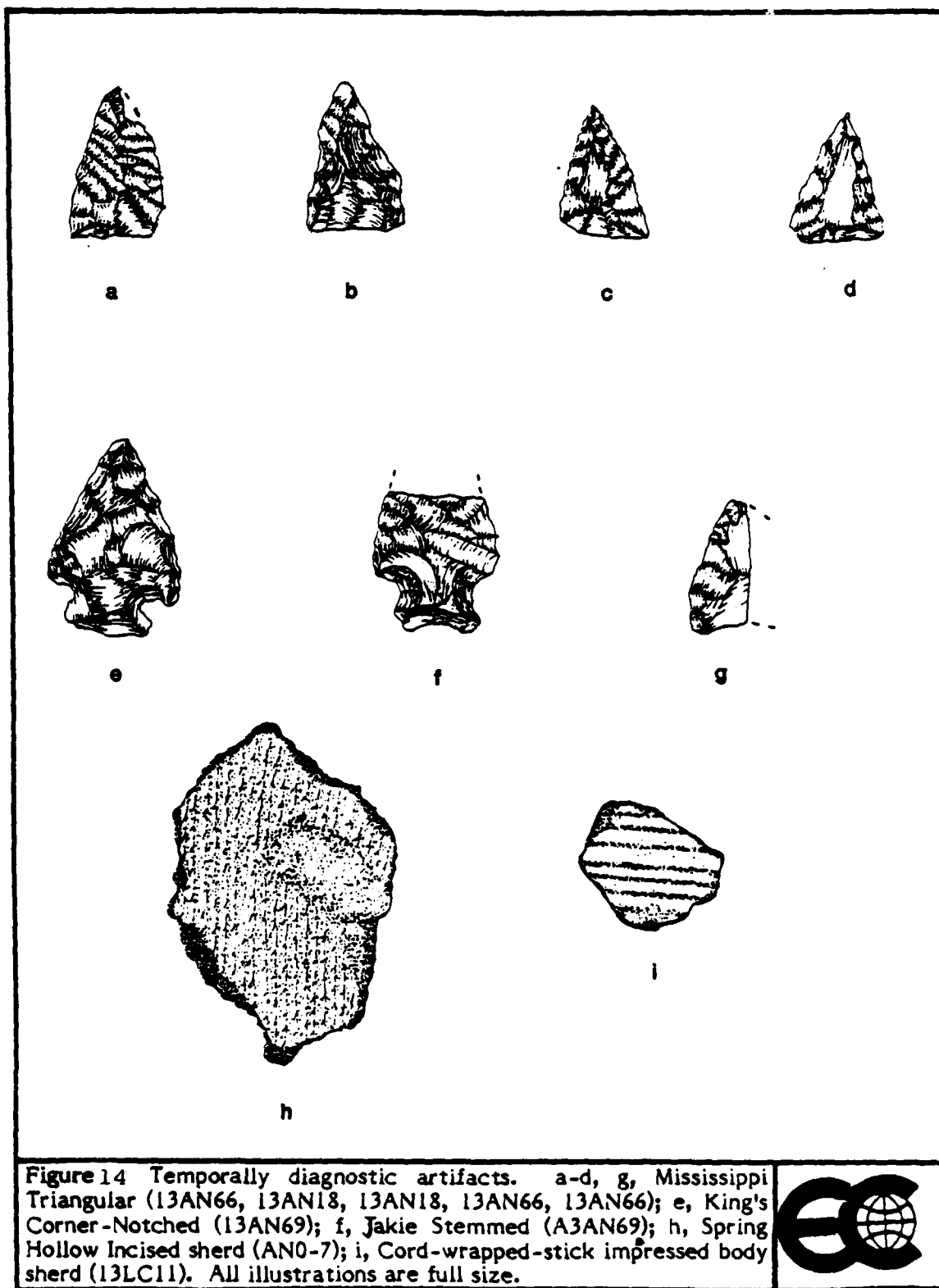
Number of Specimens: 6

Distribution: AN18-2 (2 complete)
 AN66-4 (3 broken; 1 complete)

Metrics:

Specimen No:	AN18/51	AN18/00	AN66/2	AN66/12	AN66/44	AN66/45
Maximum Length	21 mm	25 mm	broken	broken	broken	21 mm
Maximum Width	5 mm	16 mm	broken	10 mm	12 mm	16 mm
Maximum Thickness	3 mm	7 mm	broken	1 mm	broken	4 mm

Description: These are small triangular points. No notching or evidence of hafting is present. One artifact, AN18/00, is thicker than the others; edges are steeply flaked. One side also has a deep flake scar which results in a notch-like appearance. Detach of this irregular flake may have led to a discarding of the artifact. The remainder of the artifacts are very thin. Four of the points are made of a light-colored pinkish chert, probably indicating that the stone material was heat treated. Two points (AN18/00, AN66/45) are made of a similar gray chert.



Cultural Affiliation: Late Woodland to
Mississippi (Oneota) ca. AD. 1000-1600

Comparisons: Chapman 1980 (Vol. 2): 310
Alex 1980:73

Type: Kings Corner - notched Figure 5e

Number of Specimens: 1

Distribution: AN69 (complete)

Metrics: Length: 32 mm
Base Length: 6 mm
Blade Length: 26 mm
Maximum Width: 22 mm
Distal Base Width: 11 mm
Maximum Thickness: 6 mm

Description: This corner-notched point has slightly
excavate blade edges and a straight base.
The point is made of a fossiliferous dark
gray chert which has a slightly pinkish hue
to it, possibly indicating heat treatment of
the material before manufacture of the point.

Cultural Affiliation: Middle Woodland, possible Archaic

Comparisons: Chapman 1980 (Vol. 2):309
Reeder 1982:

Type: Jakie Stemmed Figure 5f

Number of Specimens: 1

Distribution: AN69 (broken)

Metrics: Length: broken
Base Length: 8 mm
Blade Length: broken
Maximum Width: 21 mm
Distal Base Width: 12 mm
Proximal Base Width: broken
Maximum Thickness: 5 mm

Description: This artifact is missing about half the
distal portion of the blade. The point is
side-notched with the sides of the blade
slightly chipped. The base is incurvate.
The point is made of a reddish chert with a
low luster. Its color probably indicates
heat treatment of the chert material.

Cultural Affiliation: Middle Archaic, ca. 5000-3000 B.C.

Comparisons: Chapman 1975 (Vol 1):250-251

Type: Unidentified Fragments

Number of Specimens: 1

Distribution: AN66

Description: Basal fragment with partial side notch present. Chert is pinkish in color. Basal edge is highly polished from wear.

GROUNDSTONE ARTIFACTS

These artifacts are produced by a variety of techniques such a battering, abrading, sawing, pecking and grinding. They are made of non-chert stone. The function of groundstone artifacts varies considerably, although most are domestic food preparation tools, chopping tools, or percussors.

Three groundstone artifacts were recovered from the project area. A hammerstone was collected at site 13LCO-6. The water smoothed cobble has battered areas at either end of the long axis.

Metrics:	Maximum Length	9.0 cm
	Maximum Width	7.5 cm
	Maximum Height	5.75 cm
	Weight	495.9 g

Two groundstone artifacts were recovered from site 13LC11. Specimen 13LC11-52 is a small water-smoothed cobble. A portion of one facet has been used as a handstone. Specimen 13LC11-82 is a slightly larger cobble. All five facets have been ground and two sides have shallow, diagonal scratches. It was probably also used as a handstone.

Metrics:	<u>13LC11-52</u>	<u>13LC11-82</u>
	Maximum Length	6.5 cm 8.5 cm
	Maximum Width	4.0 cm 6.0 cm
	Maximum Height	4.5 cm 4.0 cm
	Weight	158.8 g 238.8 g

PREHISTORIC CERAMICS

A total of 47 prehistoric ceramic sherds were collected. Most sherds are small (2 cm diameter) with cord marked or eroded surfaces. At least two ceramic types in the assemblage has been distinguished. The ceramics are described below by site.

LC11

Thirty sherds were collected from this site, and these have been grouped as shown below. Note that all have similar quartzite and sand tempering.

<u>Frequency</u>	<u>Surface Treatment</u>	<u>Temper</u>
23	cordmarked body sherds	quartzite and sand
1	cord-wrapped-stick impressed rim sherd	quartzite and sand
2	cord-wrapped-stick-impressed body sherds	quartzite and sand
1	dentate stamp neck sherds	quartzite and sand
<u>3</u>	eroded body sherds	quartzite and sand
30	Total	

The cordmarked body sherds have a mean thickness of 6.9 mm (range of 5-10 mm). Most cordmarkings have an S-twist. The clay texture is compact but granular. Interior surfaces are smoothed. Colors are either dark brown on both surfaces or orange-brown on the exterior surface and medium to dark brown on the interior surface.

The cord-wrapped-stick impressed rim sherd has a slightly thickened and pointed rim with a flat lip. The cord marking is perpendicular to the lip. The lip is 7 mm thick, and the body below the lip is 5 mm thick. The exterior surface is medium brown in color with a dark gray interior. The interior is poorly smoothed. The cord-wrapped-stick impressed body sherds (Figure 14i) have a thickness of 6 mm and dark brown interior and exteriors.

The dentate stamped nick sherd is 6 mm thick with medium brown exterior and interior surfaces. The dentate stamping is on the exterior, and the interior surface is cordmarked.

AN18

Six sherds were collected from the surface of this site. Four have eroded surfaces with coarse sand and quartzite tempering. The clay texture is compact but granular. The collection includes another sherd which is similar to these, but the texture is soft and friable. A single cordmarked

sherd with sand quartzite tempering was also found. It is 6 mm thick, with a reddish-brown exterior and dark-brown interior.

WE67

A total of nine sherds were collected from this site. One sherd with an eroded surface and quartzite and sand temper was found on the surface. Eight more sherds were found in Test Unit 3 at 30-40 cm below surface. Two of these eight had eroded surface, and six were cordmarked body sherds. The cordmarkings on the latter group are slightly smoothed, and all had crushed quartzite and sand tempering. They averaged 8 mm thickness (7-9 mm range). The texture of the pieces is friable and granular. Exterior colors were usually reddish-brown and interior colors dark black.

ANO-7

A single prehistoric sherd (Figure 14h) was found on the surface at this locality. It is a grit-tempered and of the Spring Hollow Incised type sherd (Logan 1976).

LCO-2

A small piece of grit-tempered cordmarked pottery was found on the ground surface at this locality. It is too small to assign to an established type.

DISCUSSION OF CERAMICS

As a group, most of the sherds from the sites fit the description of Havana Cordmarked ceramic as described by Chapman (1975:281). They are thinner than sherds described by Alex (1980) or Logan (1976). Havana Ware (Cedar Ware) includes vessel forms of deep, elongated jars with nearly straight or vertical rims, slightly expanding shoulders and conoidal or rounded bases (Alex 1980:88-89). These ceramics are diagnostic of the Middle Woodland period.

A single Spring Hollow Incised sherd was also found at ANO-7. This type is also affiliated with the Middle Woodland period.

HISTORIC MATERIALS

A large amount of historic material was collected during survey and testing in the project area. One historic farmstead site (13AN64) produced over 700 historic artifacts which were collected in controlled 20 x 20 m units. It should be noted that the historic site 13AN63 discovered during the wetlands survey (Pollack et. al. 1980) was also included in this analysis.

Initial sorting of all historic materials placed an artifact into one of four categories: glass, ceramics, metal or other. A series of types were provided based on specific descriptive criteria in each category. The primary criterion for ceramic type is paste, the criteria for glass is function and color.

Ceramics

A total of 606 ceramic sherds was recovered from this investigation at Rathbun Lake. The ceramic types presented below are based on paste characteristics. Each type is briefly described.

Stoneware

Stoneware is a highly utilitarian ware, produced in forms such as bowls, mugs, jugs, churns, and storage crocks. Stoneware was introduced from Europe and produced by American potters from the late eighteenth century through the nineteenth century. It is still produced in limited amounts today.

Stoneware is made from fine, dense clays fired at high temperatures. The result is a compact, vitreous body. Paste colors usually range from dark grey to dark brown. Stoneware is very often saltglazed. Saltglazing is produced by adding salt to the kiln during firing at the period of highest temperature. This forms a glassy silicate coating on the surface of the ware and results in an irregular, pitted surface.

Three hundred fifty-four pieces of stoneware were recovered from eight sites. A wide variety of colors is represented in the collection. Exterior color ranges from white to dark brown and interior color ranges from beige to black. Glazing is primarily lead, although some saltglazing occurs on the rims of bowls. Many of the base pieces are unslipped - no glazing.

The following stoneware sherds were collected from sites

13AN36-1, 13AN63-59, 13AN64-239, 13AN67-22, 13LC12-8, 13LC13-3, 13WE7-5, and 13WE63-17:

209 body sherds
65 base sherds
79 rim sherds (34 bowl, 10 jar, 9 jug, 25
unidentified)
1 lid

Three of the stoneware pieces had identifiable marker's marks:

- 13WE63-27 three quarters of a beige stoneware jar made by the Buckeye Pottery Co., Macomb, Illinois
- 13WE63 one base and side from a beige stoneware vessel with a blue leaf and stamp, made by the Western Stoneware Company, Monmouth, Illinois, 1906 to present
- 13AN64 One body piece from a beige vessel made by the Western Stoneware Company, Monmouth, Illinois, 1906 to present

Whiteware

Whiteware is a refined earthenware with a white paste and a clear colorless glaze. Whiteware has a very white paste and an overall white body and lacks the distinctive blue tint of pearlware or the yellow cast of creamware. Noel Hume (1969) gives 1820 as the approximate time when whiteware began replacing pearlware in America. Whitewares were produced as tablewares and decorative pieces. Undecorated whiteware is very common, as well as those decorated with hand painting, pressed edges, transfer-printing, and sponge, flow blue, and shell edging.

Two hundred twenty-one whiteware sherds are contained in the collection from the project area. Of this total, 212 are plain, undecorated pieces. Vessel types represented are plates, bowls, and cups.

One whiteware sherd from site 13AN66 was decorated with a molded rim and one sherd from site WEO-6 had a molded design.

Ten whiteware sherds were decorated with transfer printing. Transfer printing is accomplished by applying a colored design to an unglazed ceramic object. The design is first etched or cut into copper plates or rollers which are then inked. The design is transferred to paper by laying the paper over the plate or roller. The inked paper is then applied to the ceramic object. The vessel is fired once before glazing and again after a clear glaze has been applied. Transfer-printed white wares were common from the 1820s to the late nineteenth century. Five of the transfer-printed whiteware sherds collected were decorated with brown transfer prints, three sherds were decorated with blue, one with red, and one with purple.

Shell edging is a decorative type which consists of a molded edge over which a colored banding has been applied. The decoration occurs only on the rim. One blue shell-edged whiteware sherd and one green shell-edged whiteware sherd were recovered from site 13AN67.

Flow blue decoration is produced by painting or transfer printing a design on a vessel and letting the color flow out or bleed onto the undecorated portions of the vessel. This style of decoration dates from the nineteenth century. One sherd of flow blue decorated whiteware was recovered from site 13WE65.

Sponge decoration or spatterware is produced by applying an inked sponge to the surface of the vessel. The decoration is most often a side band around the rim of the vessel. Sponge decoration dates between ca. 1830 to ca. 1960 (Price 1979:19). One small whiteware sherd with a blue sponge decoration was recovered from site 13WE8.

Underglaze handpainted decoration is most often polychromatic in bright blues, greens and pinks. Designs are usually either floral or banded. Handpainted whitewares date between ca. 1830-1860 (Price 1979:21). Seven handpainted whiteware sherds are included in the collection from sites 13AN63, 13AN64, 13WE7 and 13WE63.

Yellowware

Yellowware is a transitional earthenware, falling somewhere between the coarse and fine varieties. The paste is cream colored, and the clear lead or alkaline glaze results in a yellow body color. Yellowware is basically utilitarian, used to make jars, bowls, and crocks. It dates to ca. 1840-1900 (Fay 1980). Six pieces of yellowware were collected at site 13AN67.

Porcelain

Porcelain was a common tableware from the eighteenth century into the twentieth century. Ground glass and other additives are mixed with clay which results in an impermeable white paste. Hard paste or "true" porcelain is fired at higher temperatures than soft paste porcelain and has a translucent quality. Porcelain tableware may be handpainted, transfer printed, or relief decorated. Dolls, toys, and marbles were also commonly made of porcelain.

Eighteen pieces of porcelain are included in the historic collection from the current investigations. Thirteen pieces of tableware, primarily cup fragments, were recovered from sites 13AN63, 13AN64, 13AN66, 13AN67, 13LC13, and

13WE63. Ten pieces are white, two are pink, and one is green. One porcelain doll's head was found at site 13AN64, and doll's feet were recovered from site 13AN67. One porcelain door knob was found at site 13AN67. Two porcelain electric insulators were recovered from site 13AN64 and 13AN67.

Glass

Glass artifacts were sorted according to the following categories:

- glass bottles and jars
- pressed glass
- window/sheet glass
- milk glass

These types were further sorted according to color. A discussion of each category is presented below.

Glass Bottles and Jars

The glass vessels recovered from the project area are primarily screw cap jar fragments. Of the 222 fragments of glass containers, only three neck fragments were identified as pre-machine-made. All other pieces are presumed to be from machine-made jars or bottles. Machine-made containers date after 1903. Fourteen of the base fragments had identifiable makers marks. Glass jar and bottle fragments were recovered from sites AN63, AN64, AN66, AN67, LC12, WE8, WE63 and WE65, WEO-7, WEO-8 and WEO-10. A breakdown of the glass container colors is given below.

Body Fragments:

Clear	57
Aqua	38
Amethyst	25
Brown	14
Light Green	9
Green	6
Dark Green	2
Blue	3

Base Fragments:

Clear	22
Aqua	14
Amethyst	7
Light Green	5
Brown	1

Five neck pieces are from pre-machine-made bottles (Figure 15b, c). They have molded necks and rims with hand-finished lips. These five bottles were probably manufactured between 1880 and 1913.

Two amethyst necks were recovered from 13AN63, one aqua and one green neck from 13AN64, and one light green neck from 13AN66. The amethyst neck from 13AN63 may be a molded neck with an applied rim which would date slightly earlier - 1860-1880.

Fourteen additional base pieces have identifiable maker's marks. These are listed below, according to site, and with manufacture dates (see Figure 16).

13AN63:

T.C. Newton	1946-present
Illinois Glass Co.	1916-1929

13AN64:

Anchor Hocking	1938-present
Owens-Illinois	1940-1954
Obear	1915-present
Owens-Illinois	1929-1954

13AN67:

Owens-Illinois	1929-1954	Figure 7f
Anchor-Hocking	1938-present	Figure 7d
Hazel-Atlas	1920-1964	Figure 7e

13WE63:

Pierce Glass	1905-1917	Figure 7c
Owens-Illinois	Since 1940	
Ball Mason Jar	1888-present	Figure 6a
Owens-Illinois	1929-1954	
Turner Brothers	1915-1929	

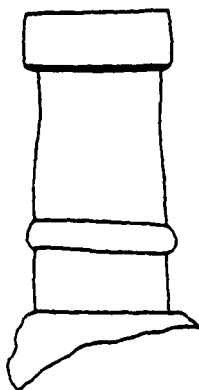
Pressed Glass

Twenty-five pieces of pressed glass are contained in the project collection. These pressed glass pieces are of various colors and shapes. They are probably fragments of bowls and other decorative tableware. Fragments were recovered from sites AN63, AN64, AN67, WE8 and WE63. A breakdown by color is given below.

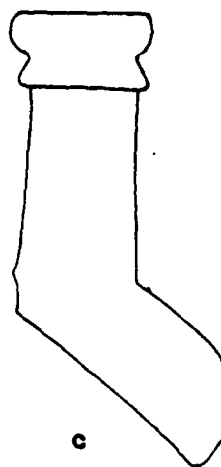
Ball

PERFECT
MASON

a



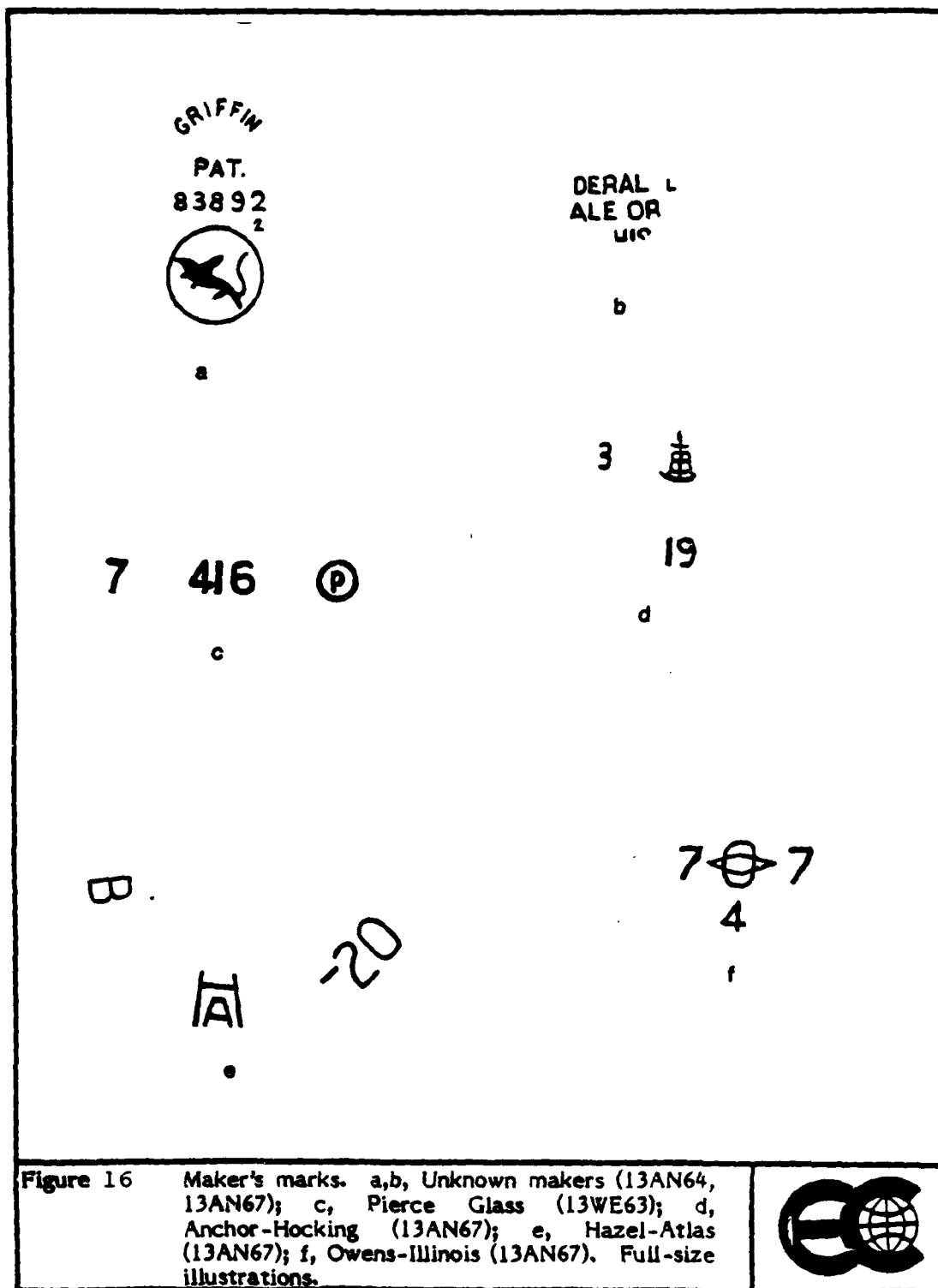
b



c

Figure 15 Glass artifacts. a, Ball Mason jar label; b,c, hand-turned bottle necks. Illustrations are full-size.





Clear	20
Amethyst	1
Green	2
Rust	1
Brown	1

Window/Sheet Glass

Twenty-eight pieces of window or sheet glass were recovered from sites AN64, AN66, AN67, LC12, WE63 and WE65. Colors are presented below.

Clear	4
Aqua	4
Green	8
Light Green	12

Milk Glass

Sixty-three pieces of milk glass were recovered from sites AN63, AN64, AN67, ANO-8 and WEO-9. The largest number of these pieces are white caning jar lid liners (9 complete liners, 35 fragments). The remaining ten pieces are bowl or vase fragments one green, one white, and one yellow slip.

Metal Artifacts

A variety of metal artifacts were recovered from the historic sites. These artifacts represent a wide range of artifact types. Included are tools, building materials, and personal items. A list of the types, by site, is presented in Table 7.

Of the metal artifacts, only the nails can be dated. Square nails were manufactured during the late eighteenth century and are still being made today. Machine-made round wire nails have been manufactured since the 1850s (Nelson 1968).

Miscellaneous

These are artifacts of leather, plastic, etc. that do not fit into the above categories. They are listed below by site.

<u>Artifact</u>	<u>Frequency</u>	<u>Distribution</u>
Leather strap	2	AN64, WE63
Wood fragments	9	AN63
Graphite from battery	2	AN64
Rubber piece	1	AN64
Battery	2	AN64, WE63
Shell fragment	1	WE7
Shell button	1	AN64
Plastic button	1	AN64
Drainage tiles	16	AN63, AN64, AN65, AN67 LCO-8, WE7, WE8, WE65
Mortar	1	LC12

Table 11.
Metal artifact frequencies and distribution

Artifact	Frequency	Distribution
Square nails	13	AN64, AN66, AN67, WE7
Round wire nails	30	AN64, AN66, AN67
Bolts	3	AN64, AN67
Nuts	4	AN64, AN67
Spike	1	AN67
Hooks	2	AN67, LCO-8
Staple	2	AN64, AN67
Hinge or latch	1	AN66
Handle	2	AN67, WEO-7
Gear	1	AN67
Wire-cutting pliers	1	AN64
Horse shoe	3	AN63, AN67, LC13
Belt buckle	1	AN64
Spoon or fork handle	1	AN67
Toothpaste tubes (Milk of Magnesia)	2	AN63, AN64
Metal slag	1	AN64
Unidentified	10	AN63, AN67, LC12, WE65
Zinc:		
Mason Jar lids	6	AN63, AN64
Tin:		
Pulley	2	AN63, AN64
Latern fixture	2	AN63, WE63
Sheet	2	AN64
Ornament	1	AN66
Brass:		
22 shell	1	WE65
Dog pin	1	AN63
Aluminum:		
Fastener	1	AN64

CHAPTER VIII. RESULTS OF MODELING

As noted, one of the major goals of this study was the construction of a predictive model capable of assisting management planning in the unsurveyed portions of the project area. Spurning the use of speculative, descriptive models as are commonly produced, this investigation centered on the production of a pragmatic, statistically-based quantitative model. Sets of cross-tabulations were computed for the environmental point data files and the archaeological site data files. Table 12 gives the results of these cross-tabulations. The analysis resulted in information about the relationship between the sites and specific environmental variables.

In order to facilitate comparability with nominal level variables, a number of interval level variables were recoded into nominal level aggregates. Distance to water was recoded into four categories: 1-99 m, 100-199 m, 200-299 m and 300-399 m. Elevation of the site and elevation of nearest water were recoded into the following categories:

1-399 ft, 400-799 ft, 800-849 ft, 850-899 ft, 900-949 ft, 950-999 ft, 1,000-1,199 ft, and 1,200 ft and higher. Slope was recoded into seven categories: 0-5%, 6-10%, 11-15%, 16-20%, 21-25%, 26-30% and 31% or greater.

The comparison of archaeological site locations with a sample of environmental point locations yielded results which indicate a non-random distribution of cultural sites over the land. Four of the environmental variables seem to exhibit differential importance for site location in the project area. These are topographic feature, distance to water, direction to water and elevation of water. Table 13 contains the significance levels computed for cross-tabulations between the archaeological sites and the environmental points.

The majority of the archaeological sites (53.8%) occurred in locations where the nearest water was between 200-299 m away. Although the largest number of environmental point locations (35.6%) also occurred in this category, a large number of points also fell in the 1-99 m category (31.9%) and the 100-199 m category (17.8%). It seems that locations within 200 m of water were avoided to some extent by prehistoric and historic peoples in the project area. This may be due to the high flood potential of areas near water. The majority of archaeological sites also had the North and South Forks of the Chariton River as the nearest water. It is probable that the Chariton River flooded often, and habitation and camp sites were placed outside of the flood zone, i.e. over 200 m away.

Table 12.
Frequency and percentage of sites and
environmental points on selected variables

	E.P. Frequency	E.P. %	Site Frequency	Site %
<u>Topographic Feature</u>				
Water	2	1.2	-	-
Floodplain	0	0	3	11.5
Floodplain Flats	93	57.1	16	61.5
T-1 Margin	1	.6	0	0
T-1 Flat	8	4.9	2	7.7
Bluff Base	0	0	1	3.8
Hillside	47	28.8	2	7.7
Upland Flats	7	4.3	1	3.8
Top of Bluff	5	3.1	1	3.8
<u>Elevation of Site</u>				
1-399 ft	0	0	0	0
850-899 ft	16	9.8	1	3.8
900-949 ft	119	73.0	20	76.9
950-999 ft	25	15.3	4	15.4
1,000-1,999 ft	2	1.2	1	3.8
1,200 ft and higher	1	.6	0	0
<u>Distance to Water</u>				
1-99 m	52	31.9	2	7.7
100-199 m	29	17.8	6	23.1
200-299 m	58	35.6	14	53.8
300-399 m	17	10.4	1	3.8
<u>Elevation of Water</u>				
850-899 ft	87	53.4	4	15.4
900-949 ft	74	45.4	22	84.6
950-999 ft	2	1.2	0	0

	E.P. Frequency	E.P. %	Site Frequency	Site %
<u>Direction to Water</u>				
N	22	14.1	1	4.5
NE	17	10.9	1	4.5
E	18	11.5	1	4.5
SE	13	8.3	1	4.5
S	25	16.0	2	9.1
SW	15	9.6	1	
W	13	8.3	8	36.4
NW	33	21.2	7	31.8
<u>Intersection</u>				
None	86	53.1	13	50.0
1	37	22.8	10	38.5
2	23	14.2	3	11.5
3	11	6.8	0	0
4	4	2.5	0	0
5	1	.6	0	0
<u>Class</u>				
2	10	6.1	0	0
3	12	7.4	1	3.8
4	2	1.2	0	0
Chariton	139	85.3	25	96.2
<u>Slope</u>				
0-5%	93	57.1	20	76.9
6-10%	62	38.0	6	23.1
11-15%	8	4.9	0	0

Table 13.
Significance levels for environmental variables

Archaeological sites vs. Environmental points	
Distance to water	.0380-
Class	.4535*
Intersection	.4270*
Direction to water	.0105-
Elevation of water	.0031-
Elevation of site	.0753*
Topographic Feature	.022-
Slope	.1255*

Significance levels are computed from the chi-square test of significance. A number above .05 is considered to indicate a distribution not significantly different from random.

* = random distribution.

Direction to water also appears to be a significant factor in choosing a habitation site. The largest number of archaeological sites occurred in locations where the nearest water was west (36.4%) or northwest (31.8%) of the site. The direction to nearest water for the environmental points was more randomly distributed across all directions. (see Table 12). This is perhaps the most intriguing factor isolated in study because, unlike topography or distance to water, this finding cannot be simply attributed to "common sense" site choices. While the east, southeast orientation of sites may have some environmental component (such as orientation to prevailing winds or storm tracks), it is also possible that this is a culturally induced situation related to the presence of neighboring groups. Unfortunately, given the small sample size, statistical uncertainties must also be considered, and little more can be safely conjectured until more data is available.

Elevation of nearest water was also differentially distributed across the land for archaeological sites. While approximately half of the environmental points nearest water elevation fell within the 850-899 m and 900-949 m categories, the sites nearest water elevation were predominantly (84.6%) within the 900 - 949 m category. This is probably due to the fact that over 75% of the sites also fell within the 900 - 949 m elevation category.

Elevation of nearest water is used as an indicator of the difficulty of access to water. The trend in the Rathbun Lake data is for sites and nearest water to be approximately the same elevation. This may be indicative of a desire for easy access to water.

The physiographic zone which is most common for both sites (61.5%) and environmental point (57.1%) location is flood-plain flats. The topographic feature comparison probably yielded significant results because 28.8% of the environmental points occur on hillsides whereas only 7.7% of the archaeological sites occur on hillsides. A hillside, of course, would not be a desirable location for living, even temporarily, because of the access difficulty and general inappropriateness of the terrain for setting up a camp or village. In historic times, the predominance of farming as an economic activity would prohibit hillside farmstead locations.

Although the environmental analysis did not yield highly significant results, a few general trends can be seen. The prehistoric and historic peoples who lived in the project area preferred locations where the topography was flat, within the Chariton River floodplain, but outside of the flood zone. Their water source was easily accessible - approximately 200 to 300 m away across level lands.

Obviously a great deal of caution must be utilized when reviewing the results of a statistical analysis using a sample size of only 26 sites. In addition, the survey conditions described earlier also have a real potential for introducing bias. While relatively simplistic, these results are at least among the first regional efforts to statistically-prove locational associations, and (more importantly) they are readily-amenable to updating through the inclusion of new data. In addition, the information presented in Table 9 is capable of rendering a great deal of concrete assistance to future management concerns. The ability to anticipate the frequency of resources in different topographic settings can be a highly pragmatic tool if properly utilized. Even though based on a small sample, this represents the kind of user-oriented management data which is being increasingly produced in this country (e.g. Luckenbach and Clark 1982).

CHAPTER IX. CONCLUSIONS

As stated in the 1980 scope of work, this project was intended as an intensive on-the-ground survey of 6,450 acres and testing sufficient to determine,

- 1 - the number of resources present
- 2 - their areal and temporal extent
- 3 - their cultural and scientific importance
- 4 - their eligibility for the National Register
- 5 - appropriate mitigation for eligible sites

These activities are meant to fulfill the obligations of the C.O.E. under the National Historic Preservation Act of 1966 (PL89-665), and to provide documentation evidencing partial compliance with Section 2(a) of Executive Order 11593 dated 13 May 1971. The degree to which each was successfully completed is described below.

NUMBER OF RESOURCES

A total of 57 archaeological resources were found to be located in the approximately 6500 acres which were chosen for intensive survey. Since the areas surveyed were chosen to represent a randomly-selected 50% sample of the total I.C.C. Wildlife Area, the total number of resources to be expected in this area should be at least double. However, a round number of about 120 can only be taken as a bare minimum given the limitations inherent in survey coverage.

The existence of limits on the physical ability of archaeologists to locate cultural manifestations in the field is considered to be an inherent problem with investigations of this type. Given the rather dense vegetation in the Rathbun Lake project area, surface visibility was often low making it difficult to find surface manifestations of sites. While we made use of shovel testing and augering to locate sites which were not visible on the surface, such subsurface techniques were for cost reasons, restricted in their areal coverage.

Such problems become particularly acute when dealing with floodplain topographic settings, where non-mechanical subsurface testing is even more restricted in effectiveness. As such settings are common in resource management work (especially involving the C.O.E.), archaeologists frequently are forced to conclude that "most sites" within their survey areas remain "buried and unfound" (Benn and Harris 1983:17).

When faced with estimating resource numbers under such conditions, archaeologists have often either abandoned the effort (Boszhardt and Overstreet 1983:111) or have been forced into making highly speculative conjectures. For example Boszhardt, et. al., in a floodplain survey on the Mississippi River located 12 sites in a 25% survey. Hypothesizing that as many as 90% of the sites in the survey area remained undetected, these figures are converted into an estimate of "200-300 or 400-500" resources in the total project area (Barhardt et. al. 1983:94).

In the case of the Rathbun Lake Wildlife Area, only about 55-60% of the survey area is actually floodplain deposits. Even in the remainder, however, dense vegetation cover often hampered locational efforts. While it can be stated with some confidence, therefore, that at least 120 sites can be expected actual numbers of 300-500 would not be surprising.

NATURE OF RESOURCES

As described previously, once cultural resources are discovered, a number of standard archeological techniques were employed to determine their areal and temporal extent, and scientific importance. The success of these endeavors, however, is directly related to the quantity and quantity of information which can be extracted from recovered artifactual material. It is in this regard that the present investigation was most severely hampered.

Somewhat indicative of this problem is the relatively low number of sites located for an area this size, and the fact that 31 of the total 57 were only "isolated occurrences". In addition, given that none of the 21 sites which received some form of subsurface testing revealed intact deposits, the contextual associations which are such crucial component of archaeological interpretation were not available to this study. The lack of intact deposits also rendered unattainable most of the more elaborate goals expressed in the original research design. Any analyses involving stratigraphy, features, faunal remains, or even intra-site spacing simply could not be conducted due to lack of data.

Perhaps the most crucial drawback to this investigation was the severe scarcity of temporally diagnostic artifacts, aside from those of the 20th century. Even given the lack of deposits for intra-site analyses many important spatial studies could have been conducted if more of the resources located were datable. Without a time-component archaeological research is obviously reduced to dealing on an extremely simplistic level. Fortunately, the lack of complexity might even be seen as advantageous from a management perspective, especially since even negative evidence still constitutes acceptable compliance.

Any worry that this lack of usable information can be attributed to flaws in the extractive methodologies is alleviated through comparison to other studies in the Chariton River Basin. For instance, in an ratio even worse than that in this study Bradley (1983) recently concluded that only 8 of 104 resources discovered in a Lake Rathbun survey were worthy of the designation of formal "sites". In surveying his lack of subsurface deposits (in 31 sites tested), and the severe scarcity of temporally diagnostic artifactual materials, Bradley pessimistically concludes that "Where conditions required quantities of data the model could not be applied" (1983:269). Similarly indicative of the lack of chronological controls in the region is the fact that only 32 of the 153 sites reported in the Chariton region by Gourley and Pemberton (1983), could be assigned to even the general temporal periods outlined in Chapter 3.

NATIONAL REGISTER SIGNIFICANCE

The last two major investigative concerns outlined in the original scope of work involve evaluating resources for their eligibility to be nominated to the National Register of Historic Places, and outlining management recommendations for those which are eligible. Since, as just noted, none of the archaeological resources studied possessed contextual integrity or an ability to provide significant information, these aspects of the study are rendered moot. It is notable that Bradley's (1983) study had similar results.

Despite these combined results, the Lake Rathbun Project area is obviously not devoid of significant archaeological information. Even small, surface sites can yield highly important spatial data, especially if efforts can be more successful in the recovery of diagnostic materials. Future research and management designs should be altered to take these factors into account. For example future methodologies might provide for the repeated collection of small sites at different times in an effort to improve the chances of successful dating. In addition research designs need to be more horizontally integrated, stressing theories which can utilize quantified, inter-site locational data.

SUMMARY INTERPRETATIONS

The report has described the design and execution of a survey strategy covering approximately 6500 acres, the inspection and evaluation of 57 archaeological sites, and the construction of a model to predict the frequency and location of unknown resources. Each of these points was successfully completed in accordance with the project's scope of work, thus partially fulfilling the management obligations of the C.O.E.

Despite these successes, the interpretive value of the information obtained was clearly far below what had been hoped for and anticipated in the original research design. The complete lack of subsurface deposits, biological remains, and the great scarcity of temporally-diagnostic artifacts rendered inoperative most intended forms of analysis. It is small comfort that this situation has often arisen in other, nearby studies.

It should be noted at this point that the major contribution provided by this work was obtained through the use of simple quantitative and statistical techniques which are readily applicable even to a narrow database. Even though the associations between environmental variables and site locations are not particularly novel, the fact that they can be demonstrated to be statistically-valid apparently is novel on the local level. The validity of the associations between sites and environment shown in Table 13, also serve to lend greater confidence in the qualified frequencies found in Table 12. In concert, these provide a legitimate, refinable basis with which to begin resource prediction in the Chariton River Drainage. Despite their simplicity, they clearly enable management decisions to be initiated which are finally based on understandable, and concrete data.

CHAPTER X. BIBLIOGRAPHY

- Alex, Lynn Marie
1980 Exploring Iowa's past. University of Iowa Press, Iowa City, Iowa.
- Anderson, Duane C. And Richard Shutler, Jr.
1974 "Summary and Conclusions" in the Cherokee Sewer Site (13CK405): a preliminary report of a stratified Paleo-Indian/Archaic site in Northwestern Iowa Journal of the Iowa Archeological Society 24:155-171.
- Ashton, Charles, James O. Crosby, and J.W. Jarnogin
1893 A handbook of Iowa. Iowa Columbian Commission, Committee on Archaeology, History and Statistical Information.
- Barhardt, M.L., D.C. Dycus, et. al.
1983 Preliminary Cultural Resource Survey and Geomorphological Assessment of Selected Areas in Navigation Pool 16, Mississippi River. The Wisconsin Archeologist 64 (1-2):9-110.
- Benn, D. and S. Harris
1983 Resurvey and Intensive Testing of Archaeological Sites at Saylorville Lake, Polk and Dallas Counties, Iowa. Report to U.S. Army Corps of Engineers, Rock Island District.
- Benn, David W. and David M. Hovde
1981 Intensive survey of archaeological site 13AN52, Rathbun Lake, Iowa. Report prepared for the U.S. Army Corps of Engineers, Kansas City District.
- Boisvert, Richard A.
1979 An archaeological reconnaissance of a proposed power substation in the vicinity of Baskett, Kentucky. University of Kentucky, Department of Anthropology, Archaeological Report 2.
- Boszhardt, R.F. and D.F. Overstreet
1983 Preliminary Investigations: Archaeology and Sediment Geomorphology, Navigation Pool 12, Upper Mississippi River. The Wisconsin Archeologist 64(1-2):111-183.

- Bradley, L.E.
1983 Subsistence and Settlement at Rathbun Reservoir Area in South Central Iowa. Report to U.S. Army Corps of Engineers, Kansas City District.
- Brown, Lionel A.
1967 Archaeology of the Rathbun Reservoir, Iowa. Journal of the Iowa Archaeological Society 14.
- Brush, G. S.
1967 Pollen Analysis of Late-Glacial and Postglacial Sediments in Iowa. In, Quaternary Paleoecology, E. J. Cushing and H. E. Wright, Jr. eds.
- Caldwell, J.R.
1958 Trend and tradition in the prehistory of the eastern United States. Memoirs of the American Anthropological Association 88.
- Chapman, Carl H.
1975 The archaeology of Missouri, I. University of Missouri Press, Columbia.
1980 The archaeology of Missouri, II. University of Missouri Press, Columbia.
- Collins, Michael B.
1975 Lithic technology as a means of processual inference. In Lithic technology, making and using stone tools, edited by Earl Swanson, pp. 15-34. Mouton, The Hague.
- Fay, Robert P.
1980 Archaeological investigations at Liberty Hall, Frankfort, Kentucky: 1979 test excavations. Report submitted to Liberty Hall, Inc. and the National Society of Colonial Dames of America.
- Fenneman, Nevin P.
1928 Physiographic divisions of the United States. Annals of the Association of American Geographers (3rd Edition) 18:261-353.
- Gourley, K.E.M. and S.A. Pemberton
1983 The Southern Iowa Rivers Basin, An Archaeological Overview. Iowa River Basins Report Series 1.
- Gradwohl, David M.
1974 Archaeology of the Central Des Moines River Valley: A preliminary summary. In Aspects of Upper Great Lakes Anthropology, edited by Eldon Johnson, Minnesota Prehistoric Archaeology Series, No. 11.

- Grantham, L.
1978 Draft preliminary cultural resources management plan for Rathbun Lake. Manuscript.
- Grantham, L.
1981 A Preliminary Management Plan for Cultural Resources, Rathbun Lake, Iowa. Report to U.S. Army Corps of Engineers, Kansas City District.
- Henning, Dale R.
1961 Oneota ceramics in Iowa. Iowa Archaeological Society 11 (2).
- Hoffman, J.
1965 Survey of salvage archaeology in the Rathbun Reservoir of Iowa. Plains Anthropologist 10 (27).
- Hume, Ivor Noel
1969 Historical Archaeology. Alfred A. Knopf, New York.
- Hutchinson, Steven K., Ellen A. Dugan, and Richard S. Levy
1981 An inventory and evaluation of architectural and engineering resources of the Big South Fork National River and Recreation Area. Environment Consultants, Inc., Cultural Resources report 81.
- Jennings, Jesse D.
1978 Origins. In Ancient Native Americans, edited by Jesse D. Jennings. pp. 1-42 W.H. Freeman and Company, San Francisco.
- Limp, Fredrick W.
1978 ORACLE system survey manual. Indiana University, Glen Black Laboratory of Archaeology, Research Reports No. 3.
- Lockridge, L. Dale
1971 Soil survey of Wayne County, Iowa. United States Department of Agriculture, Soil Conservation Service.

1977 Soil survey of Appanoose County, Iowa. United States Department of Agriculture, Soil Conservation Service.
- Logan, Wilfred D.
1976 Woodland complexes in Northeastern Iowa. Publications in Archaeology, 15. U.S. Department of the Interior, National Park Service, Washington D.C.

- Luckenbach, A.H. and W.E. Clark
1982 The Prediction and Evaluation of Archaeological Resources. Report to Maryland Department of Transportation.
- McKusick, Marshall
1964 Men of ancient Iowa as revealed by archaeological discoveries. Iowa State University Press, Iowa City.
- McKusick, Marshall and Joseph Ries
1962 Archaeological Resources of Rathbun Reservoir Drainage, Iowa. State University of Iowa.
- Nelson, Lee H.
1968 Nail chronology as an aid to dating old buildings. History News 24(11).
- O'Malley, Nancy, Julie Riesenweber, and Richard Levy
1980 Archaeological stage 1 reconnaissance of Fort Knox, Kentucky. University of Kentucky, Department of Anthropology, Archaeological Report 16.
- Padgett, Thomas J., and David M. Heisler
1979 A predictive model of archaeological site location in the Central Leaf River Basin Mississippi. Report prepared by the Department of Sociology and Anthropology, University of Southern Mississippi for the Mississippi Department of Archives and History.
- Petersen, William J.
1952 The story of Iowa: the progress of an American state. 2 Volumes. New York: Lewis Historical Publishing Company, Inc.
- Pollack, David, Ellen Dugan and Richard Levy
1980 Archaeological survey of six wetland areas, Rathbun Reservoir, Lucas, Wayne, and Appanoose Counties, Iowa. Environment Consultants, Inc., Cultural Resources Report 80-21.
- Price, Cynthia R.
1979 Nineteenth century ceramics in the eastern Ozark border region. Monograph series, Number 1. Center for Archaeological Research, Southwest Missouri State University, Springfield.
- Prill, R.C.
1960 Soil survey of Lucas County, Iowa. United States Department of Agriculture, Soil Conservation Service.

- Reeder, Robert L.
 1982 The Feeler Site, 23MS12: A multi-component site in the Central Gasconade Drainage. Report for the Missouri State Highway Commission and the Federal Highway Administration.
- Ruhe, Robert V.
 1969 Quaternary landscapes in Iowa. Iowa State University Press, Ames.
- Sage, Leland L.
 1974 A history of Iowa. Iowa State University Press, Ames.
- Schiffer, Michael B. and George Gumerman, editors
 1977 Conservation archaeology, a guide for cultural resource management studies. Academic Press, New York.
- Sorenson, Jerrel H., Michael B. Collins, Thomas W. Gatus, Susan Grant, Richard Levy, Charles R. Norville, Nancy O'Malley, Julie Riesenweber, and Malinda Stafford
 1980 Taylorsville Lake, Kentucky archaeological resources survey and evaluation, season II. University of Kentucky, Department of Anthropology, Archaeological Report 24.
- Straffin, Dean F.
 1972 Iowaville: a possible historic Ioway site on the Lower Des Moines River. Proceedings Iowa Academy of Science 79(1):44-46.
- Thomas, D.H.
 1975 None-site sampling in archaeology: up the creek without a site? In Sampling in archaeology, edited by J.W. Mueller, P. 61-81. University of Arizona Press.
- U.S. Army Engineer District, Kansas City
 1975 Final environmental statement: operation and maintenance, Rathbun Lake, Iowa. U.S. Army Corps of Engineers, Kansas City District.
- Weichman, Michael
 1976a A preliminary archaeological, architectural and historical reconnaissance within the upper Chariton River Valley, Appanoose County, Iowa and Putman County, Missouri.
 1976b An intensive survey of archaeological, architectural and historical resources within the proposed Lodge Complex Project, Lake Rathbun, Iowa. Manuscript.

Wheeler, Richard

1949 Preliminary appraisal of the archaeological resources of the Rathbun Reservoir, Chariton River Basin, Iowa. River Basin Surveys, Smithsonian Institute, Lincoln.

APPENDIX - I
SITE DESCRIPTIONS

SITE DESCRIPTION - 13AN18

Official Site Number: 13AN18

Field Site Number: 07-01, 07-05

Quadrangle: USGS Russell 15'

Elevation: 900' MSL

Physiography: floodplain terrace

Floral Cover: beach

Visibility: 100%

Dimensions: 100 m x 120 m

Description: This Mississippian site is located on a present beach of Rathbun Lake. A high concentration of lithic material was found on the surface of the site. Subsurface material was very light. Middle woodland pottery and lithics were reported by Hansen and Ries in 1962. ,

Materials Recovered: 304 chert flakes, 49 non-chert flakes
22 chert chunks, 10 non-chert chunks
1 chert core
11 modified flakes
13 biface fragments, 1 biface
5 eroded sand and grit tempered potsherds
1 cordmarked sand and grit tempered potsherd
1 Mississippian triangular projectile point
1 piece of shell
1 triangular drill, well worn
1 projectile point tip, untyped

Investigation Method: Surface collection; test excavations

Site Type: Camp site

Cultural Affiliation: Mississippian/Oneota

Recommendation: No further work necessary

SITE DESCRIPTION - 13AN21

Official Site Number: 13AN21

Field Site Number: 07-04

Quadrangle: USGS Russell 15'

Elevation: 910' MSL

Physiography: terrace

Floral Cover: beach

Visibility: 60%

Dimensions: indeterminate

Description: Two prehistoric flakes were recovered from a surface collection on this site (see 13AN64). It is located on an island in Rathbun Lake. Charles Ebel reported prehistoric material from the site in 1962.

Materials Recovered: Two chert flakes

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Unidentified prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION - 13AN36

Official Site Number: 13AN36

Field Site Number: 12-01

Quadrangle: USGS Plano 7.5'

Elevation: 935' MSL

Physiography: bluff

Floral Cover: grass

Visibility: 10%

Dimensions: indeterminate

Description: One historic ceramic sherd was located in an overgrown field on a bluff east of the Chariton River. The site was first recorded by G.E. Long who found lithic debitage, projectile points, and axes.

Materials Recovered: One brown stoneware sherd

Investigation Method: Surface collection

Site Type: Multi-component

Cultural Affiliation: Unidentified historic

Recommendation: No further work necessary.

SITE DESCRIPTION - 13AN64

Official Site Number: 13AN64

Field Site Number: 07-09

Quadrangle: USGS Russell 15'

Elevation: 900' MSL

Physiography: terrace

Floral Cover: beach

Visibility: 60%

Dimensions: 120 m x 80 m

Description: This is a large historic site presently on an island in Rathbun Lake. It is the former site of the Cross farmstead. A dense concentration of historic material was recovered from the surface. No subsurface deposits were located in test units. Charles Ebel reported prehistoric materials from the site (13AN21) in 1962.

Materials Recovered:

119	bottle glass pieces	1	porcelain doll head
8	pieces pressed glass	5	zinc canning jar liners
24	pieces sheet glass	19	round wire nails
239	stoneware and earthenware sherds	9	square cut nails
57	whiteware sherds	12	pieces drain tile
	transfer-printed sherds	32	miscellaneous metal tools
4	painted sherds	1	leather shoe fragment
9	pieces porcelain	1	shell button
19	pieces milkglass	1	plastic button
29	glass canning jar liners	2	toothpaste tubes
5	unidentified artifacts		

Investigation Method: Controlled surface collection; test excavations

Site Type: Historic farmstead

Cultural Affiliation: Early twentieth century

Recommendation: No further work necessary

SITE DESCRIPTION - 13AN66

Official Site Number: 13AN66

Field Site Number: 07-07

Quadrangle: USGS Russell 15'

Elevation: 900' MSL

Physiography: terrace

Floral Cover: beach

Visibility: 100%

Dimensions: 100 m along beach

Description: This is a multicomponent site located on a sandy peninsula on a beach of Rathbun Lake. Surface collection and test excavations recovered both pre-historic lithic material and historic artifacts. Very little subsurface material was found in the test units.

Materials Recovered:

1 small Mississippi triangular projectile point, broken	1 porcelain sherd
2 Mississippi triangular projectile point	6 machine cut nails
1 triangular projectile point fragment	1 hinge or latch
1 unidentified expanding stem projectile point base fragment	1 quartzite core
4 chert biface fragments	15 modified flakes
80 chert flakes, 27 non-chert flakes	6 pieces fire cracked rock
7 chert chucks	4 bottle glass neck fragments
1 shell fragment	22 bottle glass body fragments
8 bottle glass base fragments	1 pressed glass fragment
1 non-machine made bottle glass neck	6 stoneware sherds
18 plate glass fragments	30 whiteware sheds
	1 round wire nail
	1 tin ornament

Investigation Method: surface collection; test excavations

Site Type: Lithic scatter; Historic trash scatter

Cultural Affiliation Mississippian/Oneota
twentieth century historic

Recommendation: No further work necessary

SITE DESCRIPTION - 13AN67

Official Site Number: 13AN67
Field Site Number: 07-02
Quadrangle: USGS Russell 15'
Elevation: 900' MSL
Physiography: terrace
Floral Cover: beach
Visibility: 100%
Dimensions: 100 m x 120 m
Description: This is an historic trash scatter located on a sandy knoll on a beach area of Rathbun Lake. Surface collection of the site produced a fairly dense concentration of historic material. No historic materials were located in test units. (See 13AN18 for prehistoric materials.)

Materials Recovered:

10	bottle glass bases	84	whiteware sherds
5	bottle glass necks	2	shell edged ceramic sherds
13	bottle glass body pieces	3	transfer printed sherds
8	pieces pressed glass	6	yellowware sherds
19	pieces sheet glass	1	red and yellow ceramic fragment
3	milkglass mason jar lid liners	1	porcelain doll foot
1	milkglass fragment	3	porcelain fragments
1	transformer cap	1	brick fragment
1	fragment porcelain door knob	7	round wire nails
1	piece drainage tile		
5	machine cut nails		
12	miscellaneous metal artifacts		
5	stoneware base sherds		
17	stoneware rim sherds		

Investigation Method: Surface collection; test excavations
Site Type: Historic trash scatter
Cultural Affiliation: Twentieth century
Recommendation: No further work necessary.

SITE DESCRIPTION - 13AN69

Official Site Number: 13AN69

Field Site Number: 06-04

Quadrangle: USGS Russell 15'

Elevation: 910' MSL

Physiography: ridge finger

Floral Cover: beach

Visibility: 100%

Dimensions: 100 m x 120 m

Description: This Middle Archaic/Middle Woodland site is located at the base of a ridge finger on a sandy beach of Rathbun Lake. Surface collection and test excavations recovered projectile points and other lithic debitage. Artifact density in test units was very low.

, Materials Recovered:

1	Kings Corner Notched projectile point	1	projectile point base, Jakie stemmed type
22	chert flakes; 2 non-chert flakes	1	marginally modified chert flake
3	chert chunks; 1 non-chert chunk		
2	biface tip fragments		

Investigation Method: surface collection; test excavations

Site Type: Lithic scatter

Cultural Affiliation: Middle Archaic and Middle Woodland

Recommendation: No further work necessary.

SITE DESCRIPTION - 13LC4

Official Site Number: 13LC4

Field Site Number: 23-03

Quadrangle: USGS Russell 7.5'

Elevation: 915' MSL

Physiography: floodplain

Floral Cover: grass

Visibility: 20%

Dimensions: 10 m x 10 m

Description: This site is located in a field on the Chariton River floodplain planted in grass. A very light lithic scatter was found in the field. A grooved axe, two chert points and lithic debitage was reported from this site by Ries in 1962, who classified it as a habitation site.

Materials Recovered: 1 chert biface tip fragment
3 modified chert flakes
1 chert core
1 chert chunk
2 chert flakes, 1 non-chert flake

Investigation Method: surface collection

Site Type: lithic scatter

Cultural Affiliation: Unidentified prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION - 13LC11

Official Site Number: 13LC11
Field Site Number: BB-01
Quadrangle: USGS Russell 7.5'
Elevation: 990' MSL
Physiography: ridge top
Floral Cover: weeds, grass
Visibility: 70%
Dimensions: 25 m x 50 m
Description: This site is located on the edge of a small previously plowed field on a ridgetop overlooking the Chariton River. Intensive surface collection recovered both lithic artifacts and prehistoric ceramics. Shovel tests did not reveal any intact subsurface deposits.

Materials Recovered:

- 23 Havana cordmarked sand and quartz/quartzite tempered body sherds
- 3 eroded sand and quartz/quartzite tempered body sherds
- 1 rim sherd-cordmarked and dentate stamped, sand and quartz/quartzite tempered
- 1 cord wrapped stock impressed sand and quartz/quartzite tempered body sherd
- 6 biface fragments
- 1 ground stone artifact
- 2 non-chert cores
- 5 non-chert chunks
- 21 non-chert flakes
- 3 modified flakes
- 3 chert cores
- 22 chert chunks
- 76 chert flakes
- 2 pieces fire-cracked rock

Investigation Method: Intensive surface collection; shovel tests
Site Type: Camp site (?)
Cultural Affiliation: Middle Woodland
Recommendation: No further work necessary.

SITE DESCRIPTION - 13LC12

Official Site Number: 13LC12

Field Site Number: 23-04

Quadrangle: USGS Russell 7.5'

Elevation: 950' MSL

Physiography: ridge slope

Floral Cover: plowed

Visibility: 100%

Dimensions: indeterminate

Description: This light scatter of historic materials was located in a plowed field on a small rise in the floodplain of the Chariton River. The site is located about 125 m west of an old water pump. A brick well was discovered in the southwest corner of the field. The site is probably part of an historic farmstead.

Materials Recovered:

1	aqua bottle glass base	2	stoneware rim sherds
1	piece clear sheet glass	7	clay drainage tile pieces
4	stoneware body sherds	1	mortar fragment
2	stoneware base sherds	3	unidentified pieces of iron
3	whiteware rim sherds		

Investigation Method: surface collection

Site Type: Historic trash scatter

Cultural Affiliation: Twentieth century

Recommendation: No further work necessary.

SITE DESCRIPTION - 13LC13

Official Site Number: 13LC13

Field Site Number: 23-01

Quadrangle: USGS Russell 7.5'

Elevation: 910' MSL

Physiography: ridge slope

Floral Cover: plowed

Visibility: 100%

Dimensions: indeterminate

Description: This site is located in a plowed field on the floodplain of the Chariton River. Surface collection recovered a light scatter of historic material. It does not appear to be an historic house or farmstead site.

Materials Recovered:

1 stoneware body sherd	3 whiteware sherds
2 stoneware rim sherds (bowl)	1 horseshoe
2 porcelain sherds	

Investigation Method: surface collection

Site Type: Historic trash scatter

Cultural Affiliation: Unidentified historic

Recommendation: No further work necessary.

SITE DESCRIPTION - 13WE7

Official Site Number: 13WE7
Field Site Number:
Quadrangle: USGS Plano 7.5'
Elevation: 920' MSL - 1000' MSL
Physiography: knoll
Floral Cover: grass
Visibility: 0%
Dimensions: 150 m x 60 m

Description: This site is located on a small grassy knoll in the Chariton River flood plain. This location is reportedly the site of the Barker Mill, built ca. 1840, which burned ca. 1865. A saw mill and store were also located on the site. Previous collections at the site recovered prehistoric lithic debitage and fire cracked rock (D.E. pidcock, 1979; Hanson and Ries 1962) as well as historic ceramics. Amateur collectors in the area reported finding both prehistoric lithic materials, historic coins, and other artifacts.

Materials Recovered:

14	chert flakes	1	red transfer printed sherd
3	non-chert flakes	2	painted ceramic sherds
2	chert chunks	1	brown transfer printed sherds
1	non-chert chunk	1	brick fragment
5	stoneware crockery pieces	1	square machine cut nail
5	whiteware fragments	1	shell fragment

Investigation Method: surface collection; augering; shovel tests

Site Type: Multi-component; historic mill site

Cultural Affiliation: Undetermined prehistoric
Late nineteenth century

Recommendation: No further work necessary.

SITE DESCRIPTION - 13WE8

Official Site Number: 13WE8

Field Site Number:

Quadrangle: USGS Plano 7.5'

Elevation: 920' MSL

Physiography: knoll

Floral Cover: grass

Visibility: 0%

Dimensions: 60 m x 30 m

Description: This site is located on a small knoll in the Chariton River floodplain above an old meander. McKusick and Ries reported lithic debitage and shell from the site in 1962. Shovel tests in 1980 and augering in 1981 uncovered historic artifacts.

Materials Recovered:

2 bottle glass body pieces	1 clear pressed glass piece
2 stoneware body sherds	2 whiteware sherds
1 blue transfer-printed sherd	1 blue sponge ware sherd
1 brick fragment	

Investigation Method: shovel test; augering

Site Type: historic trash scatter

Cultural Affiliation: early twentieth century

Recommendation: No further work necessary.

SITE DESCRIPTION - 13WE10

Official Site Number: 13WE10

Field Site Number:

Quadrangle: USGS Plano 7.5'

Elevation: 940' MSL

Physiography: terrace

Floral Cover: alfalfa and oats

Visibility: 0%

Dimensions: 151 m x 60 m

Description: This site is located on a terrace above the Chariton River. Part of the the site was plowed several years ago and planted in corn. A fence line cuts through the site. Projectile points were reported from the site by Keahbone in 1962 and fire cracked rock and lithic debitage reported by D.E. Pidcock in 1979.

Materials Recovered: 2 chert flakes

Investigation Method: Surface collection; shovel testing

Site Type: Lithic scatter

Cultural Affiliation: Undetermined prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION - 13WE13

Official Site Number: 13WE13

Field Site Number: 03-01

Quadrangle: USGS Plano 7.5'

Elevation: 930' MSL

Physiography: floodplain terrace

Floral Cover: corn stubble

Visibility: 70%

Dimensions: 91 m x 121 m

Description: This site is a light lithic scatter located in a previously plowed field on a slight elevation in the Chariton River floodplain. A surface collection recovered lithic debitage, fire-cracked rock and one historic ceramic sherd. Previous collections at the site by Keahbone in 1962 recovered a few flakes.

Materials Recovered: 12 chert flakes, 3 non-chert flakes
1 chert chunk
1 piece fire-cracked rock
1 historic crockery sherd

Investigation Method: surface collection

Site Type: lithic scatter

Cultural Affiliation: Undetermined prehistoric, historic

Recommendation: No further work necessary.

SITE DESCRIPTION - 13WE15

Official Site Number: 13WE15

Field Site Number: 01-10

Quadrangle: USGS Plano 7.5'

Elevation: 955' MSL

Physiography: floodplain terrace

Floral Cover: grass, weeds, corn stubble

Visibility: 0%

Dimensions: 15 m x 60 m

Description: One flake was recovered from an overgrown field on a terrace above the South Fork of the Chariton River. Fire cracked rock and lithic debitage was reported at this site by D.E. Pidcock in 1979. Shovel tests did not uncover any subsurface artifactual material.

Materials Recovered: 1 marginally modified flake

Investigation Method: Surface collection and shovel tests

Site Type: Unknown

Cultural Affiliation: Undetermined prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION - 13WE17

Official Site Number: 13WE17

Field Site Number:

Quadrangle: USGS Plano 7.5'

Elevation: 1010' MSL

Physiography: ridge top

Floral Cover: grass

Visibility: 0%

Dimensions: 22 m x 40 m

Description: This site is located in an overgrown field on a small ridge above the Chariton River.

Materials Recovered: 1 chert flake
1 chert biface fragment

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Undetermined prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION - 13WE35

Official Site Number: 13WE35

Field Site Number: 02-01, 02-02

Quadrangle: USGS Confidence 7.5'

Elevation: 950' MSL

Physiography: floodplain terrace

Floral Cover: plowed

Visibility: 100%

Dimensions: 130 m x 100 m

Description: This Woodland site is located on a small elevated area in the Chariton River floodplain. The field is currently plowed. Fire cracked rock, clam shell, and lithic artifacts were recovered from the site by D.E. Piddock. Lithic artifacts and fire cracked rock were recovered during the current investigation.

Materials Recovered: 1 biface tip fragment
1 biface
1 marginally modified chert flake
8 chert flakes

Investigation Method: Surface collection; shovel tests

Site Type: Lithic scatter

Cultural Affiliation: Undetermined woodland

Recommendation: No further work necessary.

SITE DESCRIPTION - 13WE51

Official Site Number: 13WE51

Field Site Number: 03-04

Quadrangle: USGS Confidence 7.5'

Elevation: 935' MSL

Physiography: floodplain terrace

Floral Cover: plowed

Visibility: 100%

Dimensions: 92 m x 121 m

Description: This site is located on a small elevation in the Chariton River floodplain at the base of a ridge finger. The field is currently plowed, and surface collection recovered a light scatter of lithic artifacts. Lithic debitage, fire-cracked rock and grit tempered pottery was recovered from the site in 1979 by D. E. Pidcock.

Materials Recovered: 12 chert flakes, 1 non-chert flake
1 chert chunk
2 pieces fire-cracked rock

Investigation Method: Surface collection; shovel tests

Site Type: Lithic scatter

Cultural Affiliation: Undetermined prehistory

Recommendation: No further work necessary.

SITE DESCRIPTION - 13WE52

Official Site Number: 13WE52

Field Site Number: 03-03

Quadrangle: USGS Plano 7.5'

Elevation: 940' MSL

Physiography: floodplain terrace

Floral Cover: plowed field

Visibility: 100%

Dimensions: 75 m x 75 m

Description: This site is located in a plowed field on a small elevated area on the Chariton River floodplain. A very light lithic scatter was discovered, as well as a scatter of fire-cracked rock. Previous investigations at this site reported lithic debitage and fire cracked rock (cf. D.E. Pidcock, 5/1979).

Materials Recovered: 2 chert flakes
1 piece hematite with ground edge

Investigation Method: Surface collection

Site Type: Lithic scatter

Cultural Affiliation: Undetermined prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION - 13WE63

Official Site Number: 13WE63

Field Site Number:

Quadrangle: USGS Plano 7.5'

Elevation: 915' MSL

Physiography: ridge slope

Floral Cover: grass

Visibility: 100%

Dimensions: 50 m along stream bed

Description: The site is located on a slope in an intermittent stream bed adjacent to the old Chariton River meander. Many historic artifacts are eroding into the stream bed. An historic farmstead was located at the top of the hill, but the area has been bulldozed and no structural remains are present.

Materials Recovered:

1 chert flake	1 graphite core from battery
32 bottle glass body pieces	6 pieces pressed glass
4 bottle glass neck pieces	3 pieces sheet glass
6 bottle glass bases	1 piece Depression glass
1 clear glass bottle-Pierce Glass Co.	8 stoneware body sherds
1 clear Ball Mason jar	2 stoneware base sherds
1 aqua bottle-Owens Illinois Glass Co.	5 stoneware rim sherds
1 clear glass bottle-Turner Brothers Co.	1 stoneware jar-Buckeye Pottery Co.
1 porcelain sherd	2 tin lantern fragments
11 whiteware sherds	
1 leather shoe	

Investigation Method: Surface collection

Site Type: Historic trash scatter

Cultural Affiliation: Twentieth century

Recommendation: No further work necessary.

SITE DESCRIPTION - 13WE64

Official Site Number: 13WE64

Field Site Number: 05-02

Quadrangle: USGS Confidence 7.5'

Elevation: 920' MSL

Physiography: floodplain

Floral Cover: plowed field

Visibility: 100%

Dimensions: indeterminate

Description: This site is a light lithic scatter located in the Chariton River flood plain near an old cutoff meander. The field was recently plowed, but artifact density was very light.

Materials Recovered: 2 chert biface fragments
4 chert flakes
2 non-chert flakes
1 marginally modified chert flake

Investigation Method: Surface collection

Site Type: Lithic scatter

Cultural Affiliation: Undetermined prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION - 13WE65

Official Site Number: 13WE65

Field Site Number: 05-04

Quadrangle: USGS Confidence 7.5'

Elevation: 920' MSL

Physiography: Knoll

Floral Cover: pasture

Visibility: 0%

Dimensions: 50 m x 30 m

Description: This site is an historic trash scatter located on a small knoll overlooking an old meander cut of the Chariton River. Army Corp maps indicate a farmstead was located to the southeast of the site.

Materials Recovered:

- 2 glass bottle body pieces
- 1 clear glass bottle neck
- 2 whiteware sherds
- 5 brick fragments
- 1 brass 22 shell
- 1 piece clear sheet glass
- 1 flow blue sherd
- 1 iron fragment

Investigation Method: Surface collection and shovel tests

Site Type: Historic trash scatter

Cultural Affiliation: 20th century

Recommendation: No further work necessary.

SITE DESCRIPTION-13WE66

Official Site Number: 13WE66

Field Site Number: 14-01

Quadrangle: USGS Russell 15'

Elevation: 900' MSL

Physiography: terrace

Floral Cover: beach

Visibility: 100%

Dimensions: 30 m along beach

Description: This light lithic scatter is located on a river terrace at the base of a bluff. It is currently a beach on Rathbun Lake. Lithic artifacts were recovered from the surface along the beach edge.

Materials Recovered: 1 crude chert biface fragment
8 chert flakes
1 non-chert flake

Investigation Method: Surface collection

Site Type: Lithic scatter

Cultural Affiliation: Undetermined prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION-13WE67

Official Site Number: 13WE67

Field Site Number: 01-09

Quadrangle: USGS Plano 7.5'

Elevation: 900' MSL

Physiography: Knoll

Floral Cover: grass

Visibility: 50%

Dimensions: 180 m x 75 m

Description: This site is located in a large field on a small knoll above the Chariton River. The field was planted in corn several years ago but has not been recently plowed. Lithic material was recovered from the surface as well as in test units. No dense concentrations of artificial material were discovered in the test units.

Materials Recovered:

3 eroded grit and sand tempered potsherd	1 piece fire cracked rock
6 cordmarked quartzite and sand tempered potsherds, possibly related to Havana Cordmarked	1 stoneware body sherd
2 chert bifaces	2 whiteware sherds
94 chert flakes, 2 non-chert flakes	6 chert biface fragments
2 chert cores	2 modified flakes
	8 chert chunks, 3 non-chert chunks

Investigation Method: Surface collection and excavation of 8 1 m x 1 m test units

Site Type: Camp site (?)

Cultural Affiliation: Middle (?) Woodland
Unidentified historic

Recommendation: No further work necessary.

SITE DESCRIPTION-13ANO-1

Official Site Number: 13ANO-1

Field Site Number: 11-04

Quadrangle: USGS Plano 7.5'

Elevation: 980' MSL

Physiography: ridge slope

Floral Cover: grass

Visibility: 50%

Dimensions: indeterminate

Description: Two chert flakes were located in an old plowed field along a fence line on the western face of a ridge slope. No other cultural material was located on the surface of the field.

Materials Recovered: 2 chert flakes

Investigation Method: surface collection

Site Type: unknown

Cultural Affiliation: Unidentified prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION-13ANO-2

Official Site Number: 13ANO-2
Field Site Number: 07-06
Quadrangle: USGS Russell 15'
Elevation: 990' MSL
Physiography: ridge top
Floral Cover: beach
Visibility: 100%
Dimensions: Indeterminate
Description: Two very small flakes were recovered from a beach area on a ridge on the south side of the North Fork of the Chariton River. No other cultural material was observed on the beach.
Materials Recovered: 1 quartzite flake
1 chert flake
Investigation Method: surface collection
Site Type: unknown
Cultural Affiliation: Indeterminate prehistoric
Recommendation: No further work necessary.

SITE DESCRIPTION-13ANO-3

Official Site Number: 13ANO-3

Field Site Number: 07-04

Quadrangle: USGS Russell 15'

Elevation: 990' MSL

Physiography: Ridge slope

Floral Cover: beach

Visibility: 100%

Dimensions: Indeterminate

Description: One flake was discovered on a sandy point on the south side of Rathbun Lake. No other cultural material was observed on the beach.

Materials Recovered: 1 quartzite flake

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION-13ANO-4

Official Site Number: 13ANO-4

Field Site Number: 12-02

Quadrangle: USGS Plano 7.5'

Elevation: 930' MSL

Physiography: Ridge slope

Floral Cover: Plowed

Visibility: 90%

Dimensions: Indeterminate

Description: One flake was recovered from a shovel test in a plowed field on a slightly elevated area in the Chariton River floodplain. No other cultural material was observed in the field.

Materials Recovered: 1 chert flake

Investigation Method: Shovel tests; surface investigation

Site Type: Unknown

Cultural Affiliation: Indeterminate prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION-13ANO-5

Official Site Number: 13ANO-5

Field Site Number: 22-01

Quadrangle: USGS Plano 7.5'

Elevation: 930' MSL

Physiography: Ridge slope

Floral Cover: Beach

Visibility: 100%

Dimensions: Indeterminate

Description: Two chert flakes were located on a beach area on the north side of the South Fork of the Chariton River. No other cultural material was observed on the beach.

Materials Recovered: 2 chert flakes

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION-13ANO-6

Official Site Number: 13ANO-6

Field Site Number: 10-01

Quadrangle: USGS Plano 7.5'

Elevation: 900' MSL

Physiography: Floodplain

Floral Cover: Beach

Visibility: 100%

Dimensions: Indeterminate

Description: Three historic crockery sherds were found on a beach area on the north side of the South Fork of the Chariton River. No other cultural material was observed on the beach.

Materials Recovered: 3 beige stoneware fragments

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate historic

Recommendation: No further work necessary.

SITE DESCRIPTION-13ANO-7

Official Site Number: 13ANO-7

Field Site Number: 10-02

Quadrangle: USGS Plano 7.5'

Elevation: 930' MSL

Physiography: Ridge slope

Floral Cover: beach

Visibility: 100%

Dimensions: Indeterminate

Description: One prehistoric ceramic sherd was found on a beach on a ridge slope above the floodplain on the north side of the South Fork of the Chariton River. No other cultural materials were observed on the beach.

Materials Recovered: 1 grit-tempered Spring Hollow Incised-type ceramic sherd

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Late Middle Woodland (?)

Recommendation: No further work necessary.

SITE DESCRIPTION-13ANO-8

Official Site Number: 13ANO-8

Field Site Number: 10-03

Quadrangle: USGS Plano 7.5'

Elevation: 930' MSL

Physiography: Ridge slope

Floral Cover: Beach

Visibility: 100%

Dimensions: Indeterminate

Description: Two historic artifacts were located on a beach area on the north side of the South Fork of the Chariton River. No other cultural material was observed on the beach area.

Materials Recovered: 1 whiteware sherd with brown transfer print
1 glass canning jar lid liner

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate historic

Recommendation: No further work necessary.

SITE DESCRIPTION-13ANO-9

Official Site Number: 13ANO-9

Field Site Number: 11-01

Quadrangle: USGS Plano 7.5'

Elevation: 950' MSL

Physiography: Ridge finger

Floral Cover: Pasture

Visibility: 0%

Dimensions: Indeterminate

Description: One flake was recovered in a shovel test in a pasture on a large ridge finger north of the Chariton River. No other cultural materials were observed on the surface or in additional shovel tests.

Materials Recovered: 1 chert flake

Investigation Method: Shovel test; surface investigation

Site Type: Unknown

Cultural Affiliation: Indeterminate prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION-13LCO-1

Official Site Number: 13LCO-1

Field Site Number: 26-04

Quadrangle: USGS Russell 15'

Elevation: 960' MSL

Physiography: Ridge slope

Floral Cover: Grass

Visibility: 50%

Dimensions: Indeterminate

Description: One flake was recovered from an over-grown field on a slope of a ridge finger east of the Chariton River. No other cultural material was observed in the field.

Materials Recovered: 1 chert flake

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION-13LCO-2

Official Site Number: 13LCO-2

Field Site Number: 26-03

Quadrangle: USGS Russell 7.5'

Elevation: 990' MSL

Physiography: Ridge slope

Floral Cover: Grass

Visibility: 50%

Dimensions: Indeterminate

Description: One prehistoric potsherd was located in an overgrown plowed field on the slope of a ridge finger on the east side of the Chariton River. No other cultural material was located in the field.

Materials Recovered: 1 small grit-tempered cord-marked potsherd

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION-13LCO-3

Official Site Number: 13LCO-3

Field Site Number: 22-02 USGS Russell 15'

Elevation: 960' MSL

Physiography: Ridge slope

Floral Cover: Beach

Visibility: 100%

Dimensions: Indeterminate

Description: One chunk was found on a beach area on this north side of the North Fork of the Chariton River. No other cultural material was observed on the beach.

Materials Recovered: 1 white chert chunk

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate prehistoric

Recommendation: No further work necessary.

SITE DESCRIPTION-14LCO-4

Official Site Number:	14LCO-3
Field Site Number:	26-01
Quadrangle:	USGS Russell 7.5'
Elevation:	940' MSL
Physiography:	Floodplain terrace
Floral Cover:	Grass
Visibility:	50%
Dimensions:	Indeterminate
Description:	Two flakes were recovered from the surface of an overgrown plowed field located on a broad terrace above the floodplain of the Chariton River. No other cultural material was located in the field.
Materials Recovered:	2 chert flakes
Investigation Method:	Surface collection
Site Type:	Unknown
Cultural Affiliation:	Indeterminate prehistoric
Recommendation:	No further work necessary.

SITE DESCRIPTION - 13LCO-5

Official Site Number: 13LCO-5

Field Site Number: 24-01, 24-02

Quadrangle: USGS Russell 15'

Elevation: 940' MSL

Physiography: Ridge slope

Floral Cover: Plowed

Visibility: 100%

Dimensions: Indeterminate

Description: A very light lithic scatter and several historic artifacts were found in a large plowed field on a ridge slope. A small gulley cuts through the field. The artifact density was extremely light and no subsurface deposits were located.

Materials Recovered: 4 chert flakes
1 historic whiteware ceramic fragment
1 historic dark brown stoneware fragment
1 historic glass canning jar lid liner

Investigation Method: Surface collection

Site Type: Multi-component

Cultural Affiliation: Indeterminate prehistoric and historic

Recommendation: No further work necessary

SITE DESCRIPTION - 13LCO-6

Official Site Number: 13LCO-6
Field Site Number: 23-07
Quadrangle: USGS Russell 7.5'
Elevation: 940' MSL
Physiography: Knoll
Floral Cover: Plowed
Visibility: 100%
Dimensions: Indeterminate
Description: A hammerstone was found on the surface of a plowed field on the slope of a small rise on the Chariton River floodplain. No other cultural material was located in the field.
Materials Recovered: 1 hammerstone
Investigation Method: Surface collection
Site Type: Unknown
Cultural Affiliation: Indeterminate prehistoric
Recommendation: No further work necessary

SITE DESCRIPTION - 13LCO-8

Official Site Number: 13LCO-8

Field Site Number: 23-06

Quadrangle: USGS Russell 7.5'

Elevation: 930' MSL

Physiography: Floodplain terrace

Floral Cover: Plowed

Visibility: 100%

Dimensions: Indeterminate

Description: Two historic artifacts were found on the surface of a plowed field on the slope of a small rise of the Chariton River floodplain. No other cultural material was located in the field.

Materials Recovered: 1 brick fragment
1 iron "J" hook

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate historic

Recommendation: No further work necessary

SITE DESCRIPTION - 13LCO-9

Official Site Number: 13LCO-9

Field Site Number: 23-05

Quadrangle: USGS Russell 7.5'

Elevation: 920' MSL

Physiography: Floodplain

Floral Cover: Plowed

Visibility: 100%

Dimensions: Indeterminate

Description: A very light lithic scatter was found in a plowed field on a small rise in the Chariton River floodplain. The artifact density was extremely light and no subsurface deposits were located.

Materials Recovered: 5 chert flakes
1 quartzite flake

Investigation Method: Surface collection

Site Type: Lithic scatter

Cultural Affiliation: Indeterminate prehistoric

Recommendation: No further work necessary

SITE DESCRIPTION - 13LCO-10

Official Site Number: 13LCO-10

Field Site Number: 23-02

Quadrangle: USGS Russell 7.5'

Elevation: 940' MSL

Physiography: Ridge slope

Floral Cover: Plowed

Visibility: 100%

Dimensions: Indeterminate

Description: One flake was found in a plowed field on a slightly elevated area of the Chariton River floodplain. No other cultural material was located in the field.

Materials Recovered: 1 chert flake

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate prehistoric

Recommendation: No further work necessary

SITE DESCRIPTION - 13LCO-11

Official Site Number: 13LCO-11

Field Site Number: 22-01

Quadrangle: USGS Russell 7.5'

Elevation: 930' MSL

Physiography: Floodplain terrace

Floral Cover: Grass

Visibility: 75%

Dimensions: Indeterminate

Description: One historic sherd was found in a roadcut through a meadow on a small elevated area of the Chariton River floodplain. No other cultural material was located.

Materials Recovered: 1 brown stoneware body sherd

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate historic

Recommendation: No further work necessary

SITE DESCRIPTION - 13LCO-12

Official Site Number: 13LCO-12

Field Site Number: 21-01

Quadrangle: USGS Russell 7.5'

Elevation: 920' MSL

Physiography: Ridge base

Floral Cover: Plowed

Visibility: 100%

Dimensions: Indeterminate

Description: One flake was recovered from a plowed field near the base of a ridge overlooking a network of intermittent streams and a small swamp. No other cultural material was observed in the field.

Materials Recovered: 1 chert flake

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate prehistoric

Recommendation: No further work necessary

SITE DESCRIPTION - 13LCO-13

Official Site Number: 13LCO-13

Field Site Number: 21-01

Quadrangle: USGS Russell 15'

Elevation: 940' MSL

Physiography: Ridge finger

Floral Cover: Plowed

Visibility: 100%

Dimensions: One acre

Description: Two flakes were found in a large plowed field on the slope of a ridge finger. No other cultural material was located in the field.

Materials Recovered: 1 white chert flake
1 quartzite flake

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate prehistoric

Recommendation: No further work necessary

SITE DESCRIPTION - 13WEO-1

Official Site Number:	13WEO-1
Field Site Number:	05-06
Quadrangle:	USGS Confidence 7.5'
Elevation:	970' MSL
Physiography:	Hillside
Floral Cover:	Plowed
Visibility:	100%
Dimensions:	Intermediate
Description:	A core fragment was found in a plowed field on the slope of a ridge finger. No other artifactual material was recovered in the field.
Materials Recovered:	1 chert core fragment
Investigation Method:	Surface collection
Site Type:	Unknown
Cultural Affiliation:	Indeterminate prehistoric
Recommendation:	No further work necessary

SITE DESCRIPTION - 13WEO-2

Official Site Number: 13WEO-2

Field Site Number: 05-05

Quadrangle: USGS Confidence 7.5'

Elevation: 920' MSL

Physiography: Floodplain

Floral Cover: Plowed

Visibility: 100%

Dimensions: Indeterminate

Description: One flake was recovered from a plowed field in the floodplain of the Chariton River. No other artifactual material was observed in the field.

Materials Recovered: 1 quartzite flake

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate prehistoric

Recommendation: No further work necessary

SITE DESCRIPTION - 13WEO-3

Official Site Number: 13WEO-3

Field Site Number: 05-03

Quadrangle: USGS Confidence 7.5'

Elevation: 920' MSL

Physiography: Floodplain

Floral Cover: Plowed

Visibility: 100%

Dimensions: Indeterminate

Description: One flake was located in a plowed field in the floodplain of the Chariton River. No other artifactual material was observed in the field.

Materials Recovered: 1 gray chert flake

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate prehistoric

Recommendation: No further work necessary

SITE DESCRIPTION - 13WEO-4

Official Site Number: 13WEO-4

Field Site Number: 05-01

Quadrangle: USGS Confidence 7.5'

Elevation: 920' MSL

Physiography: Floodplain

Floral Cover: Plowed

Visibility: 100%

Dimensions: Indeterminate

Description: A very light scatter was discovered in a plowed field on the Chariton River floodplain. No subsurface deposits were discovered.

Materials Recovered: 4 chert flakes

Investigation Method: Surface collection; shovel tests

Site Type: Unknown

Cultural Affiliation: Indeterminate prehistoric

Recommendation: No further work necessary

SITE DESCRIPTION - 13WEO5

Official Site Number: 13WEO-5

Field Site Number: 02-03

Quadrangle: USGS Confidence 7.5'

Elevation: 940'MSL

Physiography: Floodplain terrace

Floral Cover: Plowed

Visibility: 100%

Dimensions: Indeterminate

Description: One historic ceramic sherd was found in a plowed field on a slight rise in the Chariton River floodplain. No other cultural material was observed in the field.

Materials Recovered: 1 salt-glazed stoneware rim sherd

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate historic

Recommendation: No further work necessary

SITE DESCRIPTION - 13WEO-6

Official Site Number: 13WEO-6

Field Site Number: 03-08

Quadrangle: USGS Confidence 7.5'

Elevation: 930' MSL

Physiography: Ridge slope

Floral Cover: Plowed

Visibility: 100%

Dimensions: Indeterminate

Description: Two historic ceramic sherds were found in a recently plowed field at the base of a ridge finger just north of the Chariton River. No other cultural material was recovered or observed in the field.

Materials Recovered: 1 iron stone sherd
1 whiteware sherd with brown transfer print

Investigation Method: Surface collection; shovel tests

Site Type: Unknown

Cultural Affiliation: Indeterminate historic

Recommendation: No further work necessary

SITE DESCRIPTION - 13WEO-7

Official Site Number: 13WEO-7

Field Site Number: 03-07

Quadrangle: USGS Confidence 7.5'

Elevation: 950' MSL

Physiography: Ridge slope

Floral Cover: Clover

Visibility: 10%

Dimensions: Indeterminate

Description: Three historic artifacts were recovered in shovel tests from a clover pasture on the slope of a fidge finger on the north side of the Chariton River. Additional shovel tests and surface inspection did not uncover any other cultural material.

Materials Recovered: 1 blue glazed ceramic sherd
1 iron handle
1 clear glass bottle fragment

Investigation Method: Shovel tests; surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate historic

Recommendation: No further work necessary

SITE DESCRIPTION - 13WEO-8

Official Site Number: 13WEO-8

Field Site Number: 15-10

Quadrangle: USGS Plano 7.5'

Elevation: 940' MSL

Physiography: Ridge slope

Floral Cover: Forest

Visibility: 0%

Dimensions: Indeterminate

Description: One glass fragment was recovered from a shovel test in a wooded area on the southern slope of a ridge finger. No other cultural material was observed during surface investigation or in additional shovel tests.

Materials Recovered: 1 clear glass bottle fragment

Investigation Method: Shovel tests; surface investigation

Site Type: Unknown

Cultural Affiliation: Indeterminate historic

Recommendation: No further work necessary

SITE DESCRIPTION - 13WEO-9

Official Site Number:	13WEO-9
Field Site Number:	15-02 Plano 7.5'
Elevation:	960' MSL
Physiography:	Ridge slope
Floral Cover:	Forest
Visibility:	0%
Dimensions:	Indeterminate
Description:	One historic milk fragment was recovered in a shovel test in a wooded gully on the eastern side of a ridge finger. No other cultural material was observed on the surface or in additional shovel tests.
Materials Recovered:	1 white milk glass fragment
Investigation Method:	Shovel tests; surface investigation
Site Type:	Unknown
Cultural Affiliation:	Indeterminate historic
Recommendation:	No further work necessary

SITE DESCRIPTION - 13WEO-10

Official Site Number: 13WEO-10

Field Site Number: 03-02 Plano 7.5'

Quadrangle: USGS Plano 7.5'

Elevation: 950' MSL

Physiography: Ridge finger

Floral Cover: Plowed

Visibility: 100%

Dimensions: Indeterminate

Description: One historic glass fragment was found on the surface of a plowed field on a ridge finger in the Chariton River floodplain. No other cultural material was observed in the field.

Materials Recovered: 1 amethyst bottle base fragment

Investigation Method: Surface collection

Site Type: Unknown

Cultural Affiliation: Indeterminate historic

Recommendation: No further work necessary